SANTA CLARA UNIVERSITY

2009-10 Undergraduate Bulletin

Undergraduate Academic Calendar
2009–2010 Academic Year
2010 Summer Session

FALL QUARTER 2009

Monday, September 21	Classes Begin
Monday, November 23 – Friday, November 27	Thanksgiving Break
Friday, December 4	Classes End
Monday, December 7– Friday, December 11	Final Examination Period

WINTER QUARTER 2010

Monday, January 4	Classes Begin
Monday, January 18	Martin Luther King Holiday
Monday, February 15	President's Holiday
Friday, March 12	Classes End
Monday, March 15 – Friday, March 19	Final Examination Period

SPRING QUARTER 2010

Monday, March 29	Classes Begin
Friday, April 2	Good Friday Holiday
Monday, May 31	Memorial Day Holiday
Friday, June 4	Classes End
Monday, June 7 – Thursday, June 10	Final Examination Period
Saturday, June 12	Commencement

SUMMER SESSION 2010

Thursday, June 17	Classes Begin – First Session
Monday, July 5	Independence Day Holiday
Thursday, July 22	Classes End – First Session
Thursday, July 22 – Friday, July 23	Final Examination Period – First Session
Monday, July 26	Classes Begin – Second Session
Friday, August 27	Classes End – Second Session
Monday, August 30 – Tuesday, August 31	Final Examination Period – Second Session

Other important dates are available on the more detailed academic calendar on the University's Web site at www.scu.edu.

Santa Clara University

Undergraduate Bulletin
2009-2010 Academic Year

PREFACE

The *Undergraduate Bulletin* contains the academic and administrative policies and regulations that govern enrollment of undergraduate students at Santa Clara University. Students are responsible for knowing all academic and administrative policies and regulations affecting their program of study and for abiding by all such policies and regulations during their period of enrollment at the University. Continued enrollment is subject to compliance with the academic and administrative policies and regulations as described herein and otherwise published by the University. Failure to understand the policies and regulations does not relieve a student of his or her responsibility for adhering to the policies and regulations.

Students are governed by the applicable degree requirements of the University and the Santa Clara Core Curriculum in the *Undergraduate Bulletin* in effect in their entry year as freshman students. Transfer students may choose between the degree requirements in the *Undergraduate Bulletin* in effect at the time of their initial enrollment at the University or the *Undergraduate Bulletin* of their class cohort as determined by the number of transfer units accepted toward the Santa Clara degree upon admission. All students must fulfill the departmental or program major and minor degree requirements in effect when they declare their major or minor program of study.

Santa Clara University reserves the right to make changes to degree program requirements, academic and administrative policies and regulations, and course offerings published in the *Undergraduate Bulletin* at any time without prior notice. The University strives to assure the accuracy of the information in the *Undergraduate Bulletin* at the time of publication. However, the University reserves the right to make corrections as necessary to the Bulletin.

The 2009-10 Undergraduate Bulletin was printed in June 2009 by the Office of the Provost and covers policies and regulations in effect as of that date. The *Undergraduate Bulletin* and other information about Santa Clara University can be found on the University's Web site at www.scu.edu.

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Santa Clara University

Santa Clara University is a comprehensive Jesuit, Catholic university located in the heart of Silicon Valley with approximately 8,500 students. Founded in 1851 by the Society of Jesus, California's oldest operating higher education institution offers a rigorous undergraduate curriculum in arts and sciences, business, and engineering, plus nationally recognized graduate and professional programs in business, education, engineering, counseling psychology, law, and pastoral ministries. The University boasts a diverse community of scholars characterized by small classes and a values-oriented curriculum and is dedicated to educating students for competence, conscience, and compassion. The traditions of Jesuit education—educating the whole person for a life of service—run deep in all of its curricular and co-curricular programs.

Santa Clara University is perennially ranked among the top comprehensive universities by *U.S. News & World Report.* SCU has one of the highest graduation rates for undergraduate students among all comprehensive universities. The University has a national reputation for its undergraduate program that features a distinctive core curriculum, an integrated learning environment, and research opportunities for undergraduate students. The MBA program in the Leavey School of Business is annually ranked in the top 20 among the nation's part-time programs and in the top five in California. The School of Law is ranked in the top 100 of the nation's law schools with its intellectual property program recognized among the top 10 of such programs in the country.

The University was established as Santa Clara College on the site of the Mission Santa Clara de Asís, the eighth of the original 21 California missions. The college originally operated as a preparatory school and did not offer courses of collegiate rank until 1853.

Following the Civil War, enrollment increased, and by 1875 the size of the student body was 275. One-third of the students were enrolled in the collegiate division; the remainder attended the college's preparatory and high school departments.

Santa Clara experienced slow and steady growth during its first 60 years, becoming the University of Santa Clara in 1912, when the schools of engineering and law were added. In 1925, the high school was separated from the University and took the name of Bellarmine College Preparatory in 1928. The Leavey School of Business began in 1926 and, within a decade, became one of the first business schools in the country to receive national accreditation.

For 110 years, Santa Clara was an all-male school. In the fall of 1961, women were accepted as undergraduates, and Santa Clara became the first coeducational Catholic university in California. The decision resulted in an admissions explosion—from 1,500 students to more than 5,000. The size of the faculty tripled, and the University began the largest building program in school history, building eight residence halls, a student union, and an athletic stadium. In the early 1970s, the Board of Trustees voted to limit the size of the undergraduate population, an action that was intended to preserve the character and ensure the quality of the University for generations to come. In 1985, the University adopted "Santa Clara University" as its official name.

UNIVERSITY VISION, MISSION, AND FUNDAMENTAL VALUES

Santa Clara University has adopted three directional statements to describe the kind of university that it aspires to become (Strategic Vision), its core purpose and the constituencies it serves (University Mission), and the beliefs that guide its actions (Fundamental Values).

Strategic Vision

Santa Clara University will excel in educating men and women to be leaders of competence, conscience, and compassion. By combining teaching and scholarship of high quality, an integrated education in the Jesuit tradition, and a commitment to students as persons, we will prepare them for professional excellence, responsible citizenship, and service to society, especially on behalf of those in greatest need.

University Mission

Santa Clara University is a Catholic and Jesuit institution that makes student learning its central focus, promotes faculty and staff learning in its various forms, and exhibits organizational learning as it deals with the challenges facing it.

Student learning takes place at the undergraduate and graduate level in an educational environment that integrates rigorous inquiry and scholarship, creative imagination, reflective engagement with society, and a commitment to fashioning a more humane and just world.

As an academic community, we expand the boundaries of knowledge and insight through teaching, research, artistic expression, and other forms of scholarship. It is primarily through discovering, communicating, and applying knowledge that we exercise our institutional responsibility as a voice of reason and conscience in society.

We offer challenging academic programs and demonstrate a commitment to the development of:

- Undergraduate students who seek an education with a strong humanistic orientation in a primarily residential setting
- Graduate students, many of them working professionals in Silicon Valley, who seek advanced degree programs that prepare them to make significant contributions to their fields

In addition to these core programs, we also provide a variety of continuing education and professional development opportunities for non-matriculated students.

Fundamental Values

We hold ourselves responsible for living out these core values, which are critical for carrying out our mission in pursuit of our vision:

Academic Quality. We seek an uncompromising standard of excellence in teaching, learning, and scholarship. All three elements are essential to academic quality at Santa Clara. We prize original scholarship for its own sake and for the contribution it makes to teaching and to the betterment of society. Our commitment to academic freedom is unwavering.

Integrated Learning. While valuing the integrity of established disciplines, we endeavor to integrate different forms of knowledge, to educate the whole person, and to foster moral and spiritual development. By promoting learning in everything we do, we foster a lifelong passion for learning.

Commitment to Students. As teachers and scholars, mentors and facilitators, we nurture and challenge students as we help them become independent learners and responsible leaders in society.

Service to Others. We promote throughout the University a culture of service—service not only to those who study and work at Santa Clara but also to society in general and to its most disadvantaged members.

Community and Diversity. We cherish our diverse community and the roots that must sustain it: shared values amidst diversity, close personal relationships, effective communication, respect for others, and an engaged concern for the common good of the campus, the local community, and the global society.

Jesuit Distinctiveness. We preserve and renew the Jesuit tradition that incorporates all of these core values. Our tradition is an expression of Christian humanism in which faith and reason together animate the most fundamental human quest: the pursuit of truth and goodness. This pursuit challenges us to counter inhumanity with humanity, to act ethically, and to promote justice with faith. We also take part in the broader Catholic tradition to which Jesuits have made a major contribution.

ACADEMIC PROGRAMS

Santa Clara University offers undergraduate degrees leading to the Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Commerce. The College of Arts and Sciences offers the Bachelor of Arts degree with majors in 20 fields, and the Bachelor of Science degree in 15 fields. The Leavey School of Business offers the Bachelor of Science degree with majors in six disciplines. The School of Engineering offers a Bachelor of Science degree with majors in five fields. A variety of interdisciplinary minors and discipline-based minors are also offered in the undergraduate program.

The School of Law offers programs leading to the degrees of Juris Doctor and Master of Laws. Concentration areas include business and commercial law; civil dispute resolution; computer, high technology, and intellectual property law; constitutional law; criminal law and procedure; environmental law; estate planning and other family wealth transfers; family law; international law; labor law; personal injury law; public interest law; real property; social justice; and taxation.

The Leavey School of Business offers a graduate program leading to the MBA degree with coursework in accounting, economics, finance, management, marketing, and operations and management information systems. The Executive MBA program is an intensive 17-month program designed for seasoned professionals. The business school offers a graduate program leading to the Master of Science in Information Systems designed to prepare students for advancement in the information systems management field. In conjunction with the law school, the business school also offers a joint degree program leading to a Master of Business Administration and a Juris Doctor.

The School of Engineering offers graduate programs leading to the Master of Science degree in applied mathematics, civil engineering, computer engineering, electrical engineering, engineering management, mechanical engineering, and software engineering and the Engineer's Degree in computer engineering, electrical engineering, and mechanical engineering. The engineering school also offers the Doctor of Philosophy degree in computer engineering, electrical engineering, and mechanical engineering.

The School of Education, Counseling Psychology, and Pastoral Ministries offers graduate programs leading to the Master of Arts degree in special education, interdisciplinary

education, educational administration, counseling psychology, and counseling. Through the Pastoral Ministries program, the School offers the Master of Arts degree in catechetics, pastoral liturgy, spirituality, and liturgical music. The Department of Education offers teacher credential programs for single-subject and multiple-subject teaching, mild/moderate specialists, early childhood special educators, and administrative services. Certification is also offered in reading, reading language arts specialist, alternative and correctional education, Catholic school leadership, gifted and talented education, and school business management.

CENTERS OF DISTINCTION

Santa Clara University has three Centers of Distinction that serve as major points of interaction between the University and society. Each center focuses on a theme that is central to Santa Clara's distinctive mission as a Jesuit university offering an educational environment that integrates rigorous inquiry and scholarship, creative imagination, reflective engagement with society, and a commitment to fashioning a more humane and just world. Each center engages faculty and students from different disciplines, as well as experts and leaders from the community through speakers, conferences, workshops, and experiential learning opportunities.

Center for Science, Technology, and Society

The Center for Science, Technology, and Society (CSTS) promotes the use of science and technology for the common good. The CSTS unites a range of stakeholders to enhance civic understanding, business decisions, and public policy on the social impacts of innovation through selected programming including workshops, forums, international conferences and awards, and educational programs. With strong partnerships in the Silicon Valley, the CSTS also conducts and sponsors cross-disciplinary research and curriculum development that addresses the societal and organizational consequences of technological advances. Complementing this outreach, the CSTS also seeks to shape well-rounded citizens of tomorrow through an interdisciplinary minor that analyzes the social, political, and environmental consequences of innovation.

Ignation Center for Jesuit Education

The Ignatian Center for Jesuit Education is dedicated to preserving and enhancing the Jesuit and Catholic mission and identity of Santa Clara University through the exploration of the Ignatian vision, the educational and spiritual legacy of St. Ignatius of Loyola, founder of the Society of Jesus. Following the Jesuit ideal of being "contemplatives in action," the Ignatian Center seeks to integrate faith and justice in a scholarly way and combine Ignatian reflection with active community engagement. The Pedro Arrupe, S.J., Partnerships for Community-Based Learning educate students and the University as a whole in the realities of the lives of the marginalized and the poor through community placements in Santa Clara County. The Bannan Institute for Jesuit Educational Mission assists the University in keeping its Catholic and Jesuit character at the center of the educational enterprise by encouraging all members of the campus community to reflect on, discuss, and creatively explore Catholic and Jesuit ideals. The Peter-Hans Kolvenbach, S.J., Solidarity Program offers students, faculty, staff, and alumni immersion experiences in the reality of our globalizing world.

Markkula Center for Applied Ethics

The Markkula Center for Applied Ethics is one of the pre-eminent centers for research and dialogue on ethical issues in critical areas of American life. The Ethics Center works with faculty, staff, students, community leaders, and the public to address ethical issues more effectively in teaching, research, and action. The Ethics Center's focus areas are business, health care and biotechnology, character education, government, global leadership, technology, and emerging issues in ethics. Articles, cases, briefings, and dialogue in all fields of applied ethics are available through the Ethics Center.

FACULTY

Santa Clara University's emphasis on a community of scholars and integrated education attracts faculty members who are as committed to students' intellectual and moral development as they are to pursuing their own scholarship. The University's more than 500 full-time faculty members include Fulbright professors, nationally recognized authors and poets, groundbreaking scientists, and distinguished economic theorists.

STUDENT BODY

Santa Clara University has a student population of approximately 8,500, with about 4,800 undergraduate students and 3,700 graduate students. The undergraduate population has a male/female ratio of 45 percent to 55 percent, and about 35 percent of undergraduate students identify themselves as persons of color. About 55 percent of undergraduates are from California, with the others coming from throughout the United States and more than a dozen foreign countries. Seventy percent of undergraduate students receive some kind of financial aid—scholarships, grants, or loans.

More than half of the undergraduate population lives in University housing, with 95 percent of freshmen and 75 percent of sophomores living on campus. Students experience an average class size of 25, with one-third of classes having 20 or fewer students and only 3 percent classes having 50 or more students. The student to faculty ratio is 12 to 1 at the University.

The University's commitment to learning is expressed in the fact that 92 percent of freshman students advance to the sophomore year, and the percentage of Santa Clara students who graduate is among the highest in the country. The four-year graduation rate for entering freshmen is about 80 percent, with a five-year graduation rate of 83 percent and a six-year graduation rate of 85 percent.

ALUMNI

Santa Clara University has more than 70,000 alumni living in all 50 states and several foreign countries. More than half of the alumni live in the San Francisco Bay Area, where many of them are leaders in business, law, engineering, academia, and public service.

CAMPUS

The University is located on a 106-acre campus in the city of Santa Clara near the southern end of the San Francisco Bay in one of the world's great cultural centers and in the heart of the Silicon Valley. At the campus center is the Mission Church, restored in 1928 and

surrounded by the roses and palm and olive trees of the historic Mission Gardens. The adjacent Adobe Lodge is the oldest building on campus, having been restored in 1981 to its 1822 decor. The more than 50 buildings on campus include 15 student residences, two libraries, a student center, the de Saisset Museum, the Center of Performing Arts, extensive athletic facilities, and a recreation and fitness center. Computer and telecommunications technology is an integral part of the life and learning at Santa Clara University. All residence hall rooms and most classrooms are connected to high-speed Internet access and campus e-mail, and most of the campus is covered by a wireless network.

The University library provides library and information services in support of the University's undergraduate and graduate programs. In fall 2008, the library was moved to the new Learning Commons, Technology Center, and Library facility, which now combines the services, resources, and staffs of the University library, information technology, and media services. The library's collection includes more than 790,000 books and bound periodicals, almost 600,000 government documents, and more than 850,000 microform units. The library subscribes to more than 4,000 current serials, including more than 500 titles in electronic format, and is a depository for United States and California government documents. In addition, the library provides access to many other information resources through the Internet and other electronic services.

The Benson Memorial Center is the University center and serves as the hub of campus life. The Benson Center is the home for a variety of services for students, faculty, staff, alumni, and guests of the University and provides an environment for the education of the whole person that continues outside the classroom. Services available in the Benson Center include dining services, the campus bookstore, meeting rooms, assistance with event planning, and the campus post office. Offices of undergraduate student government, student publications, the student programming board, student volunteer service, and various other student organizations are located in the Benson Center. The Bronco is the primary venue for entertainment and late-night activities featuring food and beverages, Internet connections, television, billiards, and nightly entertainment.

The de Saisset Museum on the Santa Clara campus serves as caretaker of the University's California History Collection, which is on permanent view. The museum presents between six and 12 temporary exhibitions every year that showcase the diversity of art and history, exploring the work of local contemporary artists, providing enriching experiences, and addressing issues of contemporary society. Opportunities are available for undergraduate students to serve as museum docents.

The Center of Performing Arts includes the Louis B. Mayer Theatre, the Fess Parker Studio Theatre, and the Recital Hall. The 500-seat Mayer Theatre is a state-of-the-art performance facility based on a flexible proscenium/thrust stage. The Fess Parker Studio Theatre has no fixed stage or seating and with its black-box design, complete with movable catwalks, provides superb flexibility in an experimental setting. The 250-seat Recital Hall provides a contemporary setting where students, faculty, and guest artists offer a variety of performances.

The Pat Malley Fitness and Recreation Center features a 9,500-square-foot weight training and cardiovascular exercise room, three basketball courts, a swimming pool, and other facilities to support the recreational and fitness needs of the campus community. The University's intercollegiate athletic teams compete in the Leavey Center, Schott Baseball Stadium, Buck Shaw Stadium, Degheri Tennis Center, and Marsalli Park.

2

The Santa Clara Undergraduate Program

Santa Clara University is committed to the education of the whole person in the Jesuit and Catholic tradition with a vision of developing men and women to be leaders of competence, conscience, and compassion. The Santa Clara undergraduate program is designed for students who seek an integrated education with a strong humanistic orientation in a primarily residential setting. An integrated education is one that encourages students to seek connections between differing ways of knowing and being in the world, between different forms of knowledge within established disciplines, and between new knowledge and that which preceded it.

Santa Clara's concept of the "whole person" inevitably embraces our social nature. When he inaugurated Santa Clara's sesquicentennial year, Father Peter-Hans Kolvenbach, superior general of the Society of Jesus, noted that "'Tomorrow's 'whole person' cannot be whole without an educated awareness of society and culture with which to contribute socially, generously, in the real world." Calling for a new Jesuit educational standard, "to educate the whole person of solidarity in the real world," he explained: "Students, in the course of their formation, must let the gritty reality of this world into their lives, so they can learn to feel it, think about it critically, respond to its suffering, and engage in it constructively. They should learn to perceive, think, judge, choose, and act for the rights of others, especially the disadvantaged and the oppressed."

The Santa Clara undergraduate program offers a curriculum and other learning experiences whose content and pattern combine the acquisition and creation of knowledge with the quest for meaning and purpose. The learning environment encourages students to make connections across the Core Curriculum, the academic major, and elective courses. It helps students relate their classroom learning with out-of-classroom learning through community-based education, Residential Learning Communities, student organizations, athletics and recreation, and other experiences. In a more general way, the undergraduate program nurtures students' ability to knit the intellectual, social, moral, spiritual, creative, and behavioral aspects of life into a coherent and meaningful whole.

Santa Clara University offers undergraduate degrees leading to the Bachelor of Arts, Bachelor of Science, and Bachelor of Science in Commerce with majors in 49 fields. The College of Arts and Sciences offers majors in ancient studies, anthropology, art history, biology, biochemistry, chemistry, classical studies, combined sciences, communication, computer science, economics, engineering physics, English, environmental science, environmental studies, French and Francophone studies, German studies, Greek, history, individual studies, Italian studies, Latin, Latin and Greek, liberal studies, mathematics, music, philosophy, physics, political science, psychology, religious studies, sociology, Spanish studies, studio art, theatre arts, and women's and gender studies. The Leavey School of Business offers majors in accounting, accounting and information systems, economics, finance, management, marketing, and operations and management information systems.

The School of Engineering offers majors in civil engineering, computer science and engineering, electrical engineering, engineering, mechanical engineering, and Web design and engineering. A wide range of departmental and school minors, emphases in majors, and concentrations in degree programs are available to enhance the major field of study for students. Consistent with the commitment to an integrated educational experience, interdisciplinary minors are offered in Arabic, Islamic, and Middle Eastern studies; Asian studies; biomedical engineering; biotechnology; Catholic studies; ethnic studies; information technology and society; international business; international studies; Medieval and Renaissance studies; musical theatre; retail studies; science, technology, and society; and urban education.

THE SANTA CLARA CORE CURRICULUM

A university expresses its most basic values in its core curriculum, the part of an undergraduate education required of all students. Santa Clara University is implementing a new Core Curriculum in 2009, building on the strengths of the former Core Curriculum. Santa Clara's new Core Curriculum explicitly integrates three traditions of higher education. As a Catholic university, Santa Clara is rooted in the tradition of pursuing an understanding of God through the free exercise of reason. As a Jesuit university, Santa Clara promotes a humanistic education that leads toward an ethical engagement with the world. As a comprehensive American university committed to liberal education, Santa Clara seeks to prepare its students for intelligent, responsible, and creative citizenship.

Reflecting these three traditions, the Core Curriculum provides every undergraduate with the common learning that all students need to become leaders of competence, conscience, and compassion.

The distinctiveness of a Santa Clara education emerges in the Core Curriculum, both in its sense of purpose rooted in the University's traditions and in its commitment to a breadth of learning that complements and supports all majors. The Core Curriculum opens students to the study and practice of the arts, humanities, mathematics, technology, the natural sciences, and the social sciences. It educates students for an ethically informed participation in civic life, employing experiential learning to form compassionate women and men attentive to human suffering. Reflecting the University's founding mission, the Core Curriculum includes a disciplined and critical reflection on the religious dimensions of human existence. In addition, because the Core Curriculum continually highlights the critical and compelling questions facing individuals and communities, the Core Curriculum supports students not only in making professional career choices but also in discerning their larger vocation—their life's purpose in the world.

Learning Goals: What will students learn in the Core Curriculum?

Because a liberal education in the Jesuit tradition is oriented toward particular ends, the Core Curriculum affirms a set of central learning goals. These goals are divided among three broad categories—Knowledge, Habits of Mind and Heart, and Engagement with the World.

Knowledge

To be prepared for well-informed engagement in society, students must comprehend the forces that have shaped the world they have inherited and the ways the world is interpreted and understood. They must also understand how they might transform the world for the better. The Core Curriculum deepens the students' knowledge of the most profound ideas and ways of knowing that emerge from the arts, humanities, and natural and social sciences.

Habits of Mind and Heart

To contribute to a rapidly changing, complex, and interdependent world, students must develop ways of thinking, feeling, and acting that allow them to educate themselves for the rest of their lives with passion and purpose. By attending to the cognitive and affective dimensions of human experience, the Core Curriculum enables students to think more deeply, imagine more freely, and communicate more clearly.

Engagement with the World

To engage with the world in meaningful ways, students need opportunities to explore and refine self-knowledge in relation to others. The Core Curriculum enhances students' understanding of the integrity of their own lives and the dignity inherent in the lives of others, especially the impoverished, suffering, and marginalized.

The goals within each broad category are listed in the table below.

Student Learning Goals in the Core Curriculum

Knowledge	*Habits of Mind and Heart*	*Engagement with the World*
Global Cultures: The intertwined development of global cultures, including Western cultures, ideas, institutions, and religions ***Arts and Humanities:*** The production, interpretation, and social influence of the fine and performing arts, history, languages, literatures, philosophy, and religion ***Scientific Inquiry:*** The principles of scientific inquiry and how they are applied in the natural and social sciences ***Science and Technology:*** The formative influences, dynamics, social impacts, and ethical consequences of scientific and technological development ***Diversity:*** Diverse human experiences, identities, and cultures within local and global societies, especially as formed by relations of power and privilege ***Civic Life:*** The roles, rights, and responsibilities of citizens and institutions in societies and in the world	***Critical Thinking:*** The ability to identify, reflect upon, evaluate, integrate, and apply different types of information and knowledge to form independent judgments ***Mathematics and Quantitative Reasoning:*** Analytical and logical thinking and the habit of drawing conclusions based on quantitative information ***Complexity:*** An approach to understanding the world that appreciates ambiguity and nuance as well as clarity and precision ***Ethical Reasoning:*** Drawing on ethical traditions to assess the consequences of individual and institutional decisions ***Religious Reflection:*** Questioning and clarifying beliefs through critical inquiry into faith and the religious dimensions of human existence ***Communication:*** Interacting effectively with different audiences, especially through writing, speech, and a second language	***Perspective:*** Seeking out the experience of different cultures and people, striving to view the world through their eyes ***Collaboration:*** The capacity to collaborate intellectually and creatively with diverse people ***Social Justice:*** Developing a disciplined sensibility toward the causes of human suffering and misery, and a sense of responsibility for addressing them ***Civic Engagement:*** Addressing major contemporary social issues, including environmental sustainability and peaceful resolution of conflict, by participating actively as an informed citizen of society and the world

Each course in the Core Curriculum addresses at least three of these learning goals. Students have multiple opportunities to encounter, practice, and master each learning goal. Specific learning objectives for each area of the Core Curriculum have been developed by faculty Core Curriculum committees. These learning objectives describe the knowledge, skills, and values students will be able to demonstrate after completing the courses in the Core Curriculum. The learning objectives are posted on the Core Curriculum Web site.

The Curriculum: What courses will students take in the Core Curriculum?

The Core Curriculum consists of two phases of coursework designed to foster developmental learning and curricular coherence. The first phase, *Foundations,* consists of courses normally taken in the first year that introduce students to the process and expectations for university-level education: Cultures and Ideas, Critical Thinking and Writing, Mathematics, a second language, and the first course in Religion, Theology, and Culture. This phase helps students begin to set their own goals for learning, preparing them to make thoughtful choices in the Core Curriculum, their majors, and co-curricular activities.

The second phase, *Explorations,* includes courses that expand students' understanding of a broad range of knowledge and abilities needed for effective participation in contemporary life. These courses include Ethics, Civic Engagement, Diversity, the Arts, Natural Science (with lab), Social Science, a third Cultures and Ideas class with a global focus, a course in Science, Technology, and Society, and two additional courses in Religion, Theology, and Culture. Some *Explorations* courses have prerequisites or must be taken in specific sequences.

The Core Curriculum also includes *Integrations* that help students make connections among courses in the core curriculum and between the Core Curriculum and the major. *Integrations* are not additional courses. Rather, they are components of other courses. One *Integrations* course includes an experiential learning element oriented toward issues of justice. One course involves an advanced writing component. Students also link a set of Core Curriculum, major, or elective courses into an interdisciplinary Pathway. The Pathways foster integrative, intentional learning, providing opportunities for undergraduate research, complementing the majors, and encouraging the application of knowledge in the world. Pathways focus on any one of a wide range of themes including Sustainability; Democracy; Vocation; American Studies; Food, Hunger and Poverty; Justice and the Arts; Race, Place and Social Inequalities; Gender, Sexuality and the Body; and Global Health.

Checklist of Core Curriculum Courses

Foundations	*Explorations*	*Integrations*
Critical Thinking and Writing 1	Ethics	Experiential Learning for Social Justice
Critical Thinking and Writing 2	Civic Engagement	Advanced Writing
Cultures and Ideas 1	Diversity	Pathway
Cultures and Ideas 2	Arts	*Students in the School of Engineering take three Pathways courses or 12 units in at least two different disciplines. Students in the College of Arts and Sciences and the Leavey School of Business take four Pathways courses or 16 units in at least two different disciplines.*
Second Language	Social Science	
Mathematics	Natural Science	
Religion, Theology, and Culture 1	Religion, Theology, and Culture 2	
	Cultures and Ideas 3	
	Science, Technology, and Society	
	Religion, Theology, and Culture 3	*Integrations are usually not additional courses. They are usually components of other courses.*

- Some courses have prerequisites or must be taken in specific sequences. See the Core Curriculum Web site.
- *Integrations* courses can fulfill more than one set of requirements in a single course.
- Most Core Curriculum courses, with a few exceptions, are 4- or 5-unit courses.
- Learning objectives for each area of the Core Curriculum are posted on the Core Curriculum Web site.

The Core Curriculum and the College of Arts and Sciences

Students in the College of Arts and Sciences should consult Chapter 3 for the requirements for their majors. There are no additional college-wide requirements beyond the requirements for the University Core Curriculum.

The Core Curriculum and the Leavey School of Business

Leavey School of Business requirements determine how students in the business school satisfy some University Core Curriculum requirements. Some Core Curriculum requirements must be fulfilled with specific courses. Students in the Leavey School of Business should consult Chapter 4 for the complete list of requirements for the majors and the school.

Checklist of Courses for Students in the Leavey School of Business: University Core Curriculum and Business School Core Curriculum

University Core Curriculum Foundations	*University Core Curriculum Explorations*	*University Core Curriculum Integrations*	*Additional Business School Requirements*
Critical Thinking and Writing 1	Ethics: MGMT 6 or PHIL 6	Experiential Learning for Social Justice	Math courses: MATH 12 or MATH 31
Critical Thinking and Writing 2	Civic Engagement: MGMT 162 (Business Capstone) plus MGMT 6 or PHIL 6	Advanced Writing: ENGL 179 or 183	Economics courses: ECON 2 and ECON 3
Cultures and Ideas 1	Diversity	Pathway: Four courses or 16 units	Contemporary Business Issues: BUSN 70
Cultures and Ideas 2	Arts		Introduction to Business Computing: OMIS 17
Second Language through 002 level	Social Science: ECON 1		Four units in Leadership Competency: BUSN 71 and BUSN 72
Mathematics MATH 11 or MATH 30	Natural Science		Two courses in Accounting: ACTG 11 and ACTG 12
Religion, Theology, and Culture 1	Religion, Theology, and Culture 2		Two courses in Data Analysis: OMIS 40 and OMIS 41
	Cultures and Ideas 3: MGMT 80		Four courses in the Business Core: FNCE 121 MKTG 181 MGMT 160 OMIS 108
	Science, Technology, and Society: OMIS 34		
	Religion, Theology, and Culture		

The Core Curriculum and the School of Engineering

School of Engineering requirements determine how students satisfy some University Core Curriculum requirements. Some Core Curriculum requirements must be fulfilled with specific courses or sets of courses. Students in the School of Engineering should consult Chapter 5 for the complete list of requirements for their majors and the school.

Checklist of Core Curriculum Courses for Students in the School of Engineering

University Core Curriculum Foundations	*University Core Curriculum Explorations*	*University Core Curriculum Integrations*	*Additional School of Engineering Requirements*
Critical Thinking and Writing 1: usually with Science, Technology, and Society theme	Ethics	Experiential Learning for Social Justice	Seven courses in Mathematics and Natural Science
Critical Thinking and Writing 2: usually with Science, Technology, and Society theme	Civic Engagement: ENGR 1 and Capstone	Advanced Writing: ENGR 182	At least 37 total units in Humanities and Social Sciences
Cultures and Ideas 1	Diversity	Pathway	
Cultures and Ideas 2	Arts		
Second Language: fulfilled through admissions requirements	Social Science		
Mathematics	Natural Science		
Religion, Theology, and Culture 1	Religion, Theology, and Culture 2		
	Cultures and Ideas 3		
	Science, Technology, and Society: fulfilled through major requirements and Critical Thinking and Writing 1 and 2 with STS theme		
	Religion, Theology, and Culture 3		

For students in the School of Engineering, some Foundations and Explorations courses fulfill two sets of requirements in a single course.

The Core Curriculum and Transfer Students

Transfer students entering the University in fall 2009 follow the Core Curriculum described in the *2008-09 Undergraduate Bulletin.* Transfer students entering the University in fall 2010 or later will normally follow the Core Curriculum described above. Students who transfer to Santa Clara University should consult Chapters 7 and 8 as well as the chapters relevant to their school or college. Students matriculating with 44 or more units of transferable college credit take any two Religion, Theology, and Culture courses.

RESIDENTIAL LEARNING COMMUNITIES

The Residential Learning Communities were established to further the goal of fostering integrated education within a community of scholars. By creating a culture in which students connect their academic experiences with their social and residential ones, the learning communities enhance the education of the whole person and deepen the connection between learning and living as responsible members of a community.

All entering first-year students, whether or not they live on campus, become members of one of eight theme-based Residential Learning Communities. Nonresident first-year students are given access to the residence hall in which their learning community is located so that they can participate fully in its programs. Students take some courses in common with others in their learning community, which enriches coursework and promotes the formation of study groups. Students also interact directly with faculty and staff and participate in theme-based co-curricular and extracurricular activities both on and off campus. The Residential Learning Communities are primarily two-year communities, but some offer the opportunity for students to remain throughout their undergraduate careers.

UNIVERSITY HONORS PROGRAM

The University Honors Program provides a learning experience appropriate to students of exceptional academic talent and imagination. The program offers small seminar-style classes, especially in courses fulfilling the University Core Curriculum requirements. Admission to the University Honors Program is by invitation or application and considers the student's academic record, standardized test scores, recommendations, and any other information the student might provide about interests, goals, or experiences.

The program is organized as two distinct but related levels open to undergraduate students from Arts and Sciences, Business, and Engineering. Level I of the program accepts first-year students for a curriculum organized around courses that satisfy University Core Curriculum requirements applying to students in every field. The University Honors Program requires that all participants maintain a cumulative grade point average of 3.3 or higher, and Level I participants must successfully complete a minimum of six program courses within the first six quarters of enrollment. Most participants complete the Level I program during their first year. Unless exempted by the director, Level I participants must fulfill specific Foundations courses in the Core Curriculum—Critical Thinking and Writing, Cultures and Ideas, and Religion, Theology, and Culture—through special class sections arranged by the program. Participants are also strongly urged to satisfy Core Curriculum requirements such as mathematics, ethics, social sciences, natural sciences, advanced writing, and advanced religion, theology, and culture with Honors Program sections.

Participants in Level I normally continue to Level II, in which they complete a minimum of four additional program courses including a senior thesis or project. Students who have completed 32 or more units but not more than 88 units at Santa Clara may apply to enter Level II by contacting the Honors Program Office. Students joining the program at Level II complete six program courses including the thesis or senior project. Some Level II courses, while not limited to program participants, offer academic opportunities especially suitable for them. For both continuing and new participants, the thesis usually grows out of a regular or independent study course taken in conjunction with the participant's major or Pathway. Successful completion of the program at Level II becomes part of a student's permanent record and appears on academic transcripts issued by the University.

Honors Program students have the opportunity to participate in the Honors Advisory Council. The University Honors Program is allied with the Office of Student Fellowships, which helps prepare students to compete for nationally competitive graduate fellowships, such as Rhodes, Marshall, Fulbright, Mitchell, Goldwater, Udall, Jack Kent Cooke, and Gates Cambridge. A competitive annual award permits one Honors Program student to spend his or her junior year at Mansfield College, Oxford University.

Courses offered through the University Honors Program can be found in Chapter 6 under Interdisciplinary Minors and Other Programs of Study.

LEAD SCHOLARS PROGRAM

The LEAD (Leadership, Excellence, and Academic Development) Scholars Program provides, for selected first-generation University students, a smooth transition to life at Santa Clara. Participation in the program is by invitation. LEAD scholars are selected from among those awarded a grant or scholarship by Santa Clara University. The LEAD Scholars Program forms a community of undergraduate peers and faculty dedicated to rigorous academic achievement and student leadership. The program involves support as well as challenge throughout the four years, with a special emphasis on the first-year experience. The LEAD Scholars Program is committed to fostering an atmosphere of successful scholarship, community engagement, and service. Social and academic programs include seminars, academic advising and support, peer mentoring, team building, and outreach to families. All LEAD Scholars participate in LEAD Week, which is scheduled for the week immediately preceding the beginning of the fall term.

INTERNATIONAL PROGRAMS

Santa Clara University aspires to create a learning community that promotes competence, conscience, and compassion among students with a mandate to pursue scholarly understanding and constructive engagement with the world. As the principal University-wide organization focusing on international, intercultural, and global subjects, International Programs provides a variety of academic settings and learning opportunities around the world through study abroad offerings. Academically the approach is both interdisciplinary and multi-disciplinary and recognizes that learning takes place in the classroom, in the field, in the community, and in service to others. International Programs appreciates that intercultural competence and knowledge of the global environment should not be limited to the humanities or social sciences, but is relevant to business, engineering, and the natural sciences as well. While International Programs' mission is informed by a variety of disciplines and viewpoints, it is inspired by the challenge offered by martyred Salvadorian Jesuit Ignacio Ellacuria:

> *We, as an intellectual community, must analyze causes; use imagination and creativity together to discover remedies; communicate to our public a consciousness that inspires the freedom of self-determination; educate professionals with a conscience, who will be immediate instruments of transformation; and continually hone an educational institution that is academically excellent and ethically oriented.*

Undergraduate students can choose from a variety of study abroad programs in over 100 locations, including Santa Clara's own programs, several direct exchange programs, and

a number of programs affiliated with other universities and study centers. Credits earned from all approved study abroad programs are accepted as degree credit at Santa Clara, and some coursework can fulfill University Core Curriculum, major, and minor requirements subject to appropriate approval.

Courses offered through International Programs can be found in Chapter 6 under Interdisciplinary Minors and Other Programs of Study.

DOMESTIC PUBLIC SECTOR STUDY PROGRAMS

The Public Sector Studies Program at Santa Clara University offers an introduction to the areas traditionally known as public policy, public administration, public affairs, and urban planning, and is designed to provide a closer look at the creation, implementation, and analysis of public policies, and the operation of governments and public organizations. The program also provides an excellent foundation for those who would like to pursue graduate studies in public policy or public administration and an alternative perspective for students who wish to pursue public law.

Opportunities for Firsthand Study

Through the Public Sector Studies program in the Department of Political Science, students have the opportunity to participate in public sector internships, the Washington Semester Program, and the Panetta Institute's Congressional Internship program. These programs offer preparation and training for students interested in working at the city, county, state, or federal level of government, in a public agency or nonprofit organization, or considering graduate-level studies in related fields.

Internships

Perhaps the best way to understand is by doing—students participating in public sector internships not only see what happens in the "real world," but they are able to take part as well, gaining invaluable experience and knowledge. Placements in the public sector internships have included the San Jose mayor's office, district offices of members of Congress and the California Legislature, government relations departments of high-tech corporations, public law offices, political campaigns, and nonprofit organizations. Many students end their internships with excellent employment prospects.

The Washington Semester Program

In the Washington Semester Program, students combine coursework taken at American University with hands-on experience via internships. In the past, SCU students have interned at the White House, the Justice Department, the FBI, interest groups, Fox News, various nonprofit organizations, and offices of members of the House of Representatives. The Washington Semester Program offers students the opportunity to live, study, and work in our nation's capital for one semester along with other students from throughout the country, as well as from abroad. Numerous programs of study are available, including American Politics, Public Law, Foreign Policy, International Environment and Development, Economic Policy, Journalism, International Business and Trade, Peace and Conflict Resolution, Israel Studies, and Contemporary Islam. Students participating in the Washington Semester Program earn 22.5-24 quarter credits for one semester of study. Grades and units received at American University will count toward the student's SCU GPA and course requirements for the department and the University.

The Panetta Institute's Congressional Internship Program

The Panetta Institute at California State University—Monterey Bay, headed by Santa Clara political science alumnus and adjunct faculty member Leon Panetta, offers an opportunity for students to gain an inside look at the legislative branch of the U.S. federal government and Washington politics. This Congressional internship begins with a two-week course at California State University—Monterey Bay, wherein students work directly with Leon Panetta or other seasoned veterans examining the legislative process and its functions. The remaining two and a half months of the internship are spent in Washington, D.C. working on Capital Hill in the office of a member of the California Congressional delegation. One exceptional Santa Clara University student is chosen each year for this fully subsidized internship.

Eligibility

To be eligible to participate in a Public Sector Studies Program, students must have completed at least 88 quarter units of credit by the date that the program of study begins, must not be on academic or disciplinary probation, and must be in good financial standing with the University. Students must also meet grade point average and other eligibility requirements for the specific program.

For more information about the Public Sector Studies Program, please visit: http://www.scu.edu/cas/polisci/publicsector.cfm or contact the director of the Public Sector Studies Program.

3

College of Arts and Sciences

Dean: W. Atom Yee
Associate Deans: Gregory P. Corning, Stephen C. Lee, Terri L. Peretti
Senior Assistant Dean: Kathleen Villarruel Schneider
Assistant Dean: Rafael Ulate

The goal of the College of Arts and Sciences is to foster a learning community committed to addressing the fundamental problems of society with a spirit of inquiry, mutual respect, and intellectual excitement and to prepare students to understand and appreciate a broad range of peoples and cultures so they may exercise moral leadership in a pluralistic world. In this way, the College is central to Santa Clara's Jesuit, liberal education.

With more than 1,500 courses in the humanities, arts, social sciences, and natural sciences, the College offers an inclusive and welcoming academic environment, providing:

- a common educational experience for all undergraduate students at Santa Clara through the University's Core Curriculum;
- majors in 38 subject areas;
- departmental and interdisciplinary minor programs; and
- opportunities for advanced study in a student's particular area of interest.

All undergraduate students at the University explore the sciences and liberal arts through the University's Core Curriculum that challenges them to develop open and critical thinking, to communicate effectively, to work with complex methods of inquiry, to understand diverse cultures and peoples, and to appreciate the demands of ethical decision making. Those who select majors or minors in the College have the opportunity to develop specialized knowledge and skills in areas of concentration that reflect their personal interests and talents. Students are encouraged to use elective courses to pursue particular interests beyond their chosen major. In addition to selecting individual courses, students have the opportunity to organize their electives around minors and emphases in many departmental and interdisciplinary programs throughout the College.

The College of Arts and Sciences offers a variety of student-faculty research opportunities and ongoing mentoring relationships in which students work closely with faculty members in the creation of knowledge or original artistic works. These opportunities include research assistantships throughout the College in the arts, humanities, and natural and social sciences.

UNDERGRADUATE DEGREES

The College of Arts and Sciences confers the degree of Bachelor of Arts in Ancient Studies, Art History, Chemistry, Classical Languages and Literatures (Greek and/or Latin), Classical Studies, Communication, English, French and Francophone Studies, German Studies, History, Individual Studies, Italian Studies, Music, Philosophy, Religious Studies, Spanish Studies, Studio Art, and Theatre Arts. The College also confers the Bachelor of Science in Anthropology, Biochemistry, Biology, Chemistry, Combined Sciences, Computer Science (Mathematics), Economics, Engineering Physics, Environmental Science, Individual Studies, Liberal Studies, Mathematics, Physics, Political Science, Psychology, and Sociology. In addition, companion majors are available in Environmental Studies and in Women's and Gender Studies.

REQUIREMENTS FOR THE BACHELOR OF ARTS

To qualify for the Bachelor of Arts degree, students must complete a minimum of 175 quarter units of credit and satisfy the requirements of the University Core Curriculum and the departmental major. There are no additional College requirements.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE

To qualify for the Bachelor of Science degree, students must complete a minimum of 175 quarter units of credit and satisfy the requirements of the University Core Curriculum and the departmental major. There are no additional College requirements.

MINORS IN THE COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences offers departmental and program minors in ancient studies, anthropology, art history, biology, chemistry, classical languages and literatures (Latin or Greek), classical studies, communication, computer science, creative writing, dance, economics, English, environmental science, environmental studies, ethnic studies, French and Francophone studies, German studies, history, Italian studies, Japanese studies, mathematics, music, philosophy, physics, political science, religious studies, sociology, Spanish studies, studio art, theatre, and women's and gender studies. Descriptions of the departmental and program minors and associated requirements can be found in the appropriate department or program section of this chapter.

In addition, the College administers interdisciplinary minors in Arabic, Islamic and Middle Eastern studies; Asian studies; biochemistry; biotechnology; Catholic studies; Medieval and Renaissance studies; musical theatre; and urban education. Descriptions of the interdisciplinary minors and the associated requirements can be found in Chapter 6, Interdisciplinary Minors and Other Programs of Study.

CENTERS, INSTITUTES, AND SPECIAL PROGRAMS

Center of Performing Arts

The Center of Performing Arts consists of Santa Clara University students, faculty, and staff working in music, theatre, and dance who, with the resources of their academic departments, serve the University and local community by providing a rich season of

performance events. Promoting the performing arts through a variety of programs, the Center encourages the interdisciplinary exploration of performance as a way of encountering, knowing, and acting in the world. The Center also encourages and supports the creative expression of Silicon Valley artists by providing performance space for local arts organizations.

Justice and the Arts Initiative

The development of competence, conscience, and compassion in our future artist-scholars is an integral, vital dimension of campus life. The Justice and the Arts Initiative (JAI) serves as an incubator for the arts and social justice on campus and in the community. The Initiative allows for the development of an intellectual frame of reference for examining and fostering artistic processes that are critically bound to issues of justice. The programs of the JAI instigate and enliven a climate of inquiry, support practical experimentation and production, and create models for interdisciplinary projects across the University. Artists increasingly use their skills across professional boundaries, effecting change and fostering dialogue as citizens of their nations and the world. The Justice and the Arts Initiative helps student-artists develop a conscience of being "persons for others" through programming that features artist-activists from around the globe; mentoring of local and international projects in music, theatre, dance, visual and the literary arts; immersion opportunities; connecting to research opportunities and graduate programs; vocational discernment; internships; and seminar courses.

Environmental Studies Institute

The Environmental Studies Institute is an interdisciplinary community of scholars—composed of faculty, staff, and students—dedicated to understanding the interactions between humans and the natural world. The Institute serves local and global communities by addressing environmental issues through education, research, and leadership. The Institute's faculty members involve undergraduates in interdisciplinary research, give lectures to enhance public understanding of environmental issues, and serve as experts on environmental advisory panels. The bachelor-level degrees in Environmental Science and Environmental Studies challenge undergraduates to integrate knowledge and research in the natural and social sciences with ethics, service, and leadership to promote a sustainable world. The Institute provides a variety of campus and community programs including seminars, internships, and opportunities for research, service, and study abroad.

Office of College Special Programs

The Office of College Special Programs works with students from traditionally underrepresented groups through innovative outreach and support programs. The relationship with students begins with high school students in the Eastside Union High School District and extends through college and beyond with the goal of developing leaders who will make an immediate impact on their communities. Managed through the Liberal Studies Program, programs include the Eastside Future Teachers Project, High School Scholars Academy, SAT Workshop, Teacher-Mentoring Program, Urban Educators Forum, and Teachers Who Inspire Excellence.

DEPARTMENT OF ANTHROPOLOGY

Professor: George D. Westermark
Associate Professors: Luis Calero, S.J., Mary Elaine Hegland, Lisa Kealhofer *(Department Chair),* Russell K. Skowronek
Assistant Professors: Michelle Bezanson, Gregory S. Gullette

The Department of Anthropology offers a degree program leading to the Bachelor of Science in Anthropology. A solid undergraduate foundation in anthropology secures the analytical skills needed to undertake professional degrees in anthropology, business, law, public health, social services or provides a foundation for embarking on a number of other professional careers. A minor in anthropology is also available. Special emphasis programs and honors thesis options are offered to qualified majors.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the University Core Curriculum requirements for the Bachelor of Science degree, students majoring in anthropology must complete the following departmental requirements:

- ANTH 1, 2, 3
- SOCI 1 and ANTH 50 (Approved substitutions for ANTH 50: ENVS 50 or POLI 50)
- ANTH 110, 112, 114, 198
- Five additional approved upper-division courses in anthropology, including at least one selected from each of the following four groups: biological (ANTH 130–139), archaeological (ANTH 140–149), cultural (ANTH 150–179), and regional (ANTH 180–189)
- An introductory statistics course
- Four anthropology seminars

Emphasis Programs in Anthropology

Anthropology majors have the option of completing a special emphasis program to complement their majors. The emphasis is not a narrow specialization but reflects competence in the applied fields of the discipline. Completion of special emphasis programs will be noted on student transcripts with the approval of the department chair.

The ***emphasis in applied anthropology*** prepares students to use anthropological knowledge to address pressing human problems in careers outside the University. Through coursework and related internships, students will gain a better understanding of how anthropological knowledge and skills can be used practically in occupations related to health and medicine, international development, environment, government, business, education, immigration, and poverty. The ***emphasis in archaeology*** focuses on a deeper understanding of the human past and how it is studied. This is a possible course of study for majors with an interest in employment in cultural resource management or graduate study in archaeology.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in anthropology:

- ANTH 1 or 2
- ANTH 3
- One additional lower-division anthropology course
- ANTH 110
- Two approved upper-division anthropology courses
- Four anthropology seminars

LOWER-DIVISION COURSES

1. Introduction to Biological Anthropology

Using an evolutionary framework, we examine how past and current human variation is measured, our place in nature, human genetics, human and nonhuman primate biology and behavior, the primate and hominin fossil record, and the origin and meaning of human biological and behavioral variation. Students gain experience in biological anthropology methods, data analysis and interpretation, and the theoretical frameworks that guide our understanding of what it means to be human. Laboratory 15 hours. (4 units)

2. Introduction to Archaeology

How do archaeologists understand the past? Examination of the methods archaeologists use to study the past and interpret ancient cultures. Selective survey of the evolution of human culture during the prehistoric period in different regions of the world. (4 units)

3. Introduction to Social and Cultural Anthropology

This course provides an introduction to the subject matter, research methods, and applications of cultural anthropology. Its purpose is to help students understand how different human groups think and live, how they cope with life's demands and expectations, and how they make sense of the world. (4 units)

4. Vanished People and Lost Civilizations

Examination of "popular anthropology." Humans and their culture, human origins, and the development and understanding of human behavior. Evaluation of theories and assumptions in the popular literature in light of current anthropological knowledge. (4 units)

5. Popular Culture and Bioanthropology

From King Kong to Clan of the Cave Bear, students examine popular culture interpretations of biological anthropology. After reviewing the history of biological anthropology, we analyze popular avenues (film, cartoons, newspapers, fiction) through which the public has been informed about human variation, the human fossil record, primate behavior, and human genetics. (4 units)

11A. and 12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address measuring humanity, peace and violence, social change in the Middle East, and other topics. (4 units each quarter)

50. World Geography

Introduction to the geographical perspective—a spatial viewpoint—in the study of the locations and distributions of physical and human phenomena on the earth's surface. Major global social, political, and economic problems discussed. (4 units)

56. Anthropology of Religion

Relationship between religion to culture, personality, and social organization. Theories on the functioning of myth, ritual, and symbolism. Religious leaders, interpretations of death and afterlife, traditional curing, and religious movements and cults. (4 units)

86. Native American Cultures

Study of the range of variation in Native American cultures. Examination of changes in recent history as well as contemporary issues. (4 units)

88. Women, Gender, and Sexuality in the Middle East

Examination through monographs, novels, guest speakers, and films of the situations and activities of Middle Eastern women in a variety of geographical and class settings. Topics include gender, sexuality and the body, women in economic and political process, family and kinship, war, and revolution. Women and gender symbolism as related to politics, development, social change, and religious resurgence. (4 units)

90. Cross-Cultural Study of Women, Gender, and Sexuality

Cross-cultural examination of the roles, statuses, sexuality, and gender constructions of females and males through monographs, films, and guest speakers. Exploration of factors affecting the lives of women and men, such as domestic and public realms of activities, contested identities, political and economic factors, social change, religion, family, and socialization. (4 units)

91. Lower-Division Seminar in Anthropology

Seminar for freshmen and sophomores on selected issues in anthropology. *By permission of the instructor only.* (4 units)

UPPER-DIVISION COURSES

110. Anthropological Theory

In-depth treatment of innovations and developments in anthropological thought. Emphasis on explaining what is essential about particular theoretical frameworks and their integration across anthropological subdisciplines. *Required for majors and minors in anthropology.* (5 units)

112. Anthropological Methods

Logic of research procedures and theoretical issues associated with anthropological practice. Skills and methods of (qualitative and quantitative) research design and analysis are explored in readings and exercises. *Required for majors in anthropology. Prerequisites: ANTH 1, 2, 3, with grades of C– or better, or special permission of the department chair.* (5 units)

114. Senior Project

An in-depth senior seminar in one of the four subfields of anthropology. Topic will change annually. *Required for majors in anthropology. Prerequisite: ANTH 112 with a grade of C– or better, or special permission of the department chair.* (5 units)

130. Primate Behavioral Ecology

Fundamental concepts related to the study of primate behavior and ecology. Course focuses on the theoretical frameworks that guide primate behavioral studies, including in-depth empirical exploration of adaptation, comparative primate behavior, ecology, field studies, and classification. 'How do we know what we think we know?' Critical evaluation of core concepts in primate behavioral ecology as well as data collection, presentation, and interpretation in primate field studies. (5 units)

132. Paleoanthropology

How do we know what we think we know about human evolution? Students explore this question by reading primary literature, examining fossil and comparative data, and exploring current technology for interpreting hominin evolution. Class reviews evolutionary theory and the varying levels with which paleoanthropological analysis can be applied to understanding past and present variation. (5 units)

133. Human Nutrition and Culture

Study of the interactions of biology and culture in shaping the dietary patterns and nutritional status of human beings. Discussion of the evolution of the human diet and nutritional requirements; the basic principles of human nutrition and nutritional assessment; and the social, economic, and political factors that influence the nutritional health of human societies today. (5 units)

134. Health, Disease, and Culture

Emphasizes the study of health and disease in ecological perspective; the influence of culture on the ways people explain and treat illness, stress, and healing; and the complexities of health care delivery in pluralistic societies. (5 units)

135. Human Development and Sexuality

Examination of evolutionary, biological, and sociocultural aspects of human growth, development, and sexuality throughout the life cycle. Special emphasis on prenatal development, pregnancy and birth, infancy and young childhood, adolescence, and old age in a range of societies. (5 units)

136. Forensic Anthropology

Using physical remains to learn what we can about the age, gender, and other characteristics of deceased people, including their nutrition, exposure to diseases, experience with serious accidents, and causes of death. (5 units)

140. Food, Culture, and the Environment

Exploration of the history and impact that food choices have made on human societies. Several foods that have become staples in the world today, like sugar, pepper, and various grains, have significantly affected the environment, patterns of land use, economy (both local and global), cuisine, and the meaning of meals and food sharing. Class topics illustrate how food choices shape cultural groups and interaction, as well as how they shape environmental change. (5 units)

142. Environmental Archaeology

How archaeologists use environmental data to understand past human societies. Discussion topics include issues of human evolution, complexity, symbolism, social interaction, and technology. Discussion of the data and arguments offered for the role of environments in creating and shaping cultures—how environments and people shape each other. (5 units)

145. Historical Ecology

Historical ecology investigates the historical relationships between cultures and their environments. Students will use various types of data, including historical documents, maps, and land use information, to learn how to reconstruct the historical ecology of the Santa Clara Valley. (5 units)

146. Perspectives on the Spanish and Native American Experience

Examines the Spanish penetration and conquest of the New World. Considers changes that influenced both the Native Americans and European immigrant populations to form new ethnic groupings. Ethnohistorical, documentary, and archaeological records applied to explore relevant topics. (5 units)

147. Archaeology of Complex Societies

The world and people have changed radically in the last 10,000 years with the domestication of plants and animals and the development of cities and states. We examine the archaeological evidence in different regions of the world (after 12,000 B.C.) to understand how and why these transformations occurred. (5 units)

148. Historical Archaeology

Introduction to the discipline of historical archaeology. Its emergence and development, including controversies regarding its relationships with the larger fields of history and anthropology. Introduction to the variety of data sources used by historical archaeologists to aid in interpretation of the historical past. (5 units)

150. Religion in Culture and Society

Cross-cultural examination of religions in a range of human societies. Emphasis on religious pluralism, religious movements, and secularism in the contemporary world. (5 units)

151. Law and Society

Current issues in the study of law and society. Exploration of legal systems at various levels of societal complexity to understand the basis for social control in all human societies. Courts, legal professions, and politics from a cross-cultural perspective. (5 units)

152. Political Anthropology

Cross-cultural examination of political behavior in a range of human societies and the effects of social, cultural, and environmental factors on political organization. Religion and politics, the role of women in politics, ethnic competition, secret societies, political ritual and ceremony, and the effects of colonialism and economic change. Special emphasis on the relationship between local communities and national governments. (5 units)

154. Environmental Anthropology

Survey of the theories and methods used to examine the complex and dynamic interactions between humans and their physical environment (past and present). An emphasis is placed on the relationships between human cultural systems and ecological contexts by focusing on how humans use and transform ecosystems and how such interactions shape social, political, and economic institutions. Topics include political ecology, environmental justice, ecotourism, and natural resource exploration. (5 units)

155. Conflict Resolution

Examines sources and responses to conflict in varied social and cultural contexts. Emphasis on application of negotiation, mediation, and arbitration in different fields. (5 units)

156. Anthropology of Muslim Peoples and Practices

Examination of the variety of religious experiences, activities, and interpretations, and the place of Islam in current social and political life such as community organization, local-level politics, governments and political resistance, women's roles and gender, and contact with the West. Discussion about underlying reasons for the resurgence of Islam and effects for Muslim peoples and societies. (5 units)

157. Family and Culture

Ways in which kinship and family life can be organized. Causes and consequences of different family patterns. How families differ across cultures, over time, and among different groups in the United States. (5 units)

158. Applied Anthropology

Application of anthropological knowledge to contemporary human problems. Topics range from the introduction of new crops in agricultural development to miscommunication in international business. Concerns of education, health, and volunteer services. Implications of ethical problems and theories of social change. (5 units)

159. Globalization and Culture Change

This 2-unit course addresses the problem of global poverty and culture change in a world where rapid globalization is creating wealth for a few and unspeakable misery for most. It examines the complex question of how our planet has become a place where the majority of humankind lives at a level of dehumanizing poverty while a minority enjoys wealth and abundance. (2 units)

172. Anthropology of Aging

Examination of aging and the elderly in a range of human societies. Emphasis on social change, gender, and social and geographic mobility, as well as social, political, and cultural differences in understanding how the elderly adapt to, and cope with, the modern world. (5 units)

180. Study of Selected Cultures

Examination of the social life, culture, and institutions of geographic areas and culture zones not otherwise covered in ANTH 181–188 regional studies course series. (5 units)

181. Globalization and Culture Change in the Pacific Islands

Examines the transformation of Pacific Island societies in response to globalization. Change in island cultures, effects of urbanization, and the migration of diasporic communities are studied. Comparisons made between Pacific Island areas of Micronesia, Melanesia, and Polynesia and other world regions. (5 units)

185. Peoples of Latin America

Examines the diversity of Latin America, a continent of great physical, archaeological, cultural, and socioeconomic contrasts; the mix of races and cultural traditions; human adaptation to the natural environment; economic and social inequalities; and the common heritage of Latin American peoples. (5 units)

186. Mesoamerican Prehistory

A survey of the prehistoric cultures of Mesoamerica from earliest human occupation to European colonization. Examines the origins of agriculture, village life, and the

rise and fall of state-level societies through the work of archaeologists and epigraphists. Consideration given to the ecological adaptations, social organization, and belief systems of the Aztecs, Toltecs, Maya, and the inhabitants of Teotihuacan. (5 units)

188. People, Culture, and Change in the Middle East

Examination of people's lives, social organization, and change in the Middle East through archaeological evidence, ethnographies, film, and novels. Emphasis on political culture, the fate of tribal peoples and peasants under modernizing nations, women in society and gender symbolism, contact with the West, Islam and religious resurgence, and revolution. (5 units)

189. North American Prehistory

Survey of the prehistoric cultures of North America and Northern Mexico from earliest human occupation to European colonization. (5 units)

190. Advanced Seminar in Anthropology

Seminars for juniors and seniors on selected topics in anthropology. *By permission of the instructor only.* (5 units)

191. Peer Educators

Peer educators in anthropology work closely with a faculty member to help students understand course material, think more deeply about course material, benefit from collaborative learning, feel less anxious about testing situations, and/or help students enjoy learning. *By permission of the instructor only.* (5 units)

195. Field Course in Anthropological Methods

On-site anthropological field research in any of the subfields of anthropology. Practical experience in the basic techniques of observation and field analyses. *By permission of the chair and instructor only.* (5 units)

196. Archaeological Method and Theory

Introduction to the techniques of discovery and analysis that archaeologists have found useful in research. Special attention to sampling techniques in survey and excavation. Classification techniques for measuring parameters of prehistoric demography, diet, craft specialization, and exchange. (5 units)

198. Internship

Opportunity for students to work and conduct anthropological analyses in community agencies, museums, government agencies, and political or industrial organizations. May be repeated for credit with approval of the chair. *Required for majors in anthropology. Must receive approval of the internship coordinator prior to registration. Internship placements should be completed prior to fall quarter of senior year. Students must enroll in the internship class during the fall of their senior year.* (5 units)

199. Directed Reading/ Directed Research

Intensive reading in areas not emphasized by the department. Independent research on specific topics not fully covered in departmental courses. May be repeated for credit with approval of the chair. *Written departmental approval necessary prior to registration.* (5 units)

DEPARTMENT OF ART AND ART HISTORY

Professor Emerita: Bridgid Barton
Professors: R. Kelly Detweiler *(Department Chair),* Samuel R. Hernandez
Associate Professors: Susan Felter, Kathleen Maxwell, Andrea Pappas
Assistant Professors: Katherine Aoki, Blake de Maria, Don Fritz, Katherine L. Morris
Senior Lecturer: Gerald P. Sullivan, S.J.

The Department of Art and Art History offers a degree program leading to the Bachelor of Arts in two undergraduate majors, art history and studio art, with courses in both disciplines fostering a thorough understanding of the history and practice of art. Department faculty encourages interdisciplinary connections with the Santa Clara community through course offerings that fulfill a wide range of College and University Core Curriculum requirements, as well as courses through the Residential Learning Communities and the University Honors Program.

ART HISTORY

The art history major at Santa Clara is distinguished by excellent teaching and mentoring, challenging coursework, and opportunities for study abroad, peer educating, and student internships at local and Bay Area institutions. Moreover, we support, in conjunction with our fully accredited campus museum, Explore with Me, a docent-training program for our students. Advanced art history majors are encouraged to participate in our annual Art History Symposium and the Art History Research Paper Competition. The art history major features numerous opportunities for personal and professional growth to understand better the meanings and purposes of the visual arts, including their historic development, their roles in society, and their relationships to other fields in the humanities. Students learn to think critically and communicate clearly about works of art. The art history major develops the following skills: knowledge acquisition, critical thinking, analysis of visual and textual sources, advanced research and writing skills, and sophisticated oral presentations. These intellectual skills enable art history majors to pursue a diversity of interests in a wide spectrum of fields and professions, including graduate work in art history.

STUDIO ART

Studio art majors develop comprehensive skills that help prepare them for graduate study or careers in either the fine or commercial arts. Faculty members emphasize the development of conceptual and technical competence, as well as critical analysis of the student's own work and that of others. By graduation, every student develops a body of original artwork to be exhibited in a senior show in the department gallery. Students are required to articulate an artist's statement reflecting their own engagement with the creative process, in conjunction with their senior show.

Studio art majors take all three sections of the Western culture art history sequence and are encouraged to continue with one or more courses in 20th-century or contemporary art. The studio seminar is highly recommended for all studio art majors and should be taken in the third year when possible. At the end of each year, students are encouraged to submit their work to the Annual Student Art Exhibit, which is judged by an outside professional in the field of art. The department also oversees merit-based scholarships, which are usually given to outstanding students with junior status. Studio art majors may continue to develop their skills in graduate school, or may choose to move directly into art-oriented jobs.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling the University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in art history or studio art must complete the following departmental requirements:

Major in Art History

- ARTH 21, 22, and 100
- Two studio art courses
- Eight additional courses from ARTH 24–198, only two of which can be lower-division courses. ARTH 11 and 12 (art history Cultures and Ideas sequence) may be substituted for two of these courses. The six upper-division courses must equal 30 units. Only 4 units of Art History 98/198 may count toward the major.
- One additional art history or studio art course

Major in Studio Art

- One course from ARTS 30–57, or approved equivalent upper-division course
- One course from ARTS 63, 64, 163, or 164
- ARTH 21 and 22
- Seven additional approved studio art courses; upper-division preferred
- One course from ARTH 101–199
- Two additional approved upper-division courses

Studio art or art history courses taken during a term of study abroad normally may be applied to no more than half of the requirements, including no more than half of the upper-division units, for a major or minor in studio art or art history. Students who wish to receive credit toward a major or minor for studio art courses taken at affiliated study abroad programs must be able to document their work for review by members of the department's faculty.

REQUIREMENTS FOR THE MINORS

Minor in Art History

Students must fulfill the following requirements for a minor in art history:

- ARTH 21 and 22
- One studio art course
- Four additional courses from ARTH 24–198, only one of which may be lower division. ARTH 11 and 12 (art history Cultures and Ideas sequence) may be substituted for two of these courses. The three upper-division courses must equal 15 units, and at least two of the upper-division courses must be taken at Santa Clara. Only 4 units of Art History 98/198 may count toward the minor.

Minor in Studio Art

Students must fulfill the following requirements for a minor in studio art:

- One course from ARTS 30–57 or approved upper-division equivalent
- One course from ARTS 63, 64, 163, 164
- Three additional approved studio art courses; upper-division preferred
- One course from ARTH 21 and 22
- One additional upper-division course within the department

LOWER-DIVISION COURSES: ART HISTORY

11A. and 12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address art, politics and propaganda, and other topics. (4 units each quarter)

13. Western Culture: Art History III

Interdisciplinary introduction to the art, architecture, and culture of modern Europe and the United States from the 18th century to the present. Topics may include Romanticism, Neoclassicism, Impressionism, and the development of modern art through the mid-20th century. (4 units)

21. The Ancient World

The foundation course of the art history program, this course focuses on visual analysis and the ancient world. Topics may include the relationship between Greek art and politics, Imperial Roman art and propaganda, Pompeian wall painting, early Christian art, the origins of Islam, and the function and culture of pilgrimage in the Middle Ages. *Formerly ARTH 11.* (4 units)

22. The Visual Culture of Early Modern Europe

Basic research methods in art history. Foundation course on the Italian Renaissance in which objects will be approached from a cultural and social perspective. Topics of discussion include the patronage and production of art, the visual construction of gender identity; the relationship between art, science, and religion brought about by humanist study. *Formerly ARTH 12.* (4 units)

48. Native Arts of the Americas

Introduction to the indigenous arts and architecture of North, South, and Central America. Focus may include cultures of ancient Mexico, the Great Plains, and the American Southwest. Classroom lecture and discussion, plus a visit to a local museum. (4 units)

97. Special Topics

Occasional courses in selected art historical topics. May be repeated for credit. (4 units)

98. Internship/Practicum

Individual projects in conjunction with professional visual arts agencies. May be repeated for credit, but ARTH 98 units will not count toward the major. *Prerequisite: Written proposal must be approved by on-site supervisor, art history faculty member, and department chair.* (2–5 units)

UPPER-DIVISION COURSES: ART HISTORY

100. Art History Proseminar

Origins of the discipline and its current methodologies. Close textual analysis with writing and discussion. Required of all art history majors, preferably at the end of the sophomore year. *Prerequisites: ARTH 21 and 22 or consent of instructor. Formerly ARTH 190.* (5 units)

104. Greek Art and Architecture

Examination of Greek art from the Archaic through the Hellenistic periods. Developments in architecture, sculpture, vase painting, and wall painting will be addressed in their cultural context. (5 units)

106. Art and Architecture of the Roman Republic and the Early Empire

Chronological survey of artistic development in Republican and Imperial Rome. Related issues include the influence of Greek and Etruscan art, the relationship between political ideology and public art programs, and the impact of improved materials on building design. (5 units)

110. Early Christian and Byzantine Art

Christian art and architecture from the catacombs in Rome through the early 14th century in Byzantium. Highlights include the Constantinian monuments of Rome, Justinianic Ravenna and Constantinople, iconoclasm, and the Macedonian "Renaissance." (5 units)

112. The Art of the Book

Covers select developments in the illustrated book between the 5th and 15th centuries C.E. Topics for discussion may include the earliest preserved classical and religious codices, Anglo-Saxon manuscripts, Carolingian and Ottonian manuscript illumination, Romanesque and Gothic manuscript illumination, and Byzantine manuscript illumination. (5 units)

114. Early Medieval Art

Art and architecture in Western Europe from the early Middle Ages to circa A.D 1000. Hiberno-Saxon, Carolingian, and Ottonian art discussed in their respective political, intellectual, and cultural contexts. (5 units)

116. Romanesque and Gothic Art

Study of religious art and architecture in Western Europe from the 11th through the 14th centuries. Comprehensive survey of the high Middle Ages that considers structural form, technique, sculptural programs, and related minor arts. (5 units)

121. Venice and the Other in Renaissance

Concentrates on the art and culture of the Venetian Republic c. 1400–1650 C.E., specifically the visual culture produced by and/or associated with ethnic and social groups excluded from the highest echelons of Venetian society. Areas of inquiry include Muslim merchants living in the city, construction of the Jewish ghetto, Ethiopian servant community, courtesan culture, convent life, the material culture of exorcism, witchcraft, and dwarfism. *Prerequisite: Upper-division status or consent of instructor.* (5 units)

122. The Art of Early Modern Rome

In-depth examination of the painting, sculpture, and architecture in the Papal States during the 15th and 16th centuries. Special attention will be placed upon the decoration of the Vatican, the careers of Michelangelo and Raphael, and the artistic reaction to the Sack of Rome. (5 units)

128. 17th-Century Italian Painting and Sculpture

In addition to the visual agenda of the counter-reformation, topics for discussion include Caravaggio's homoerotic works,

Artemisia Gentileschi and feminist art historiography, theatricality in the work and writings of Gian Lorenzo Bernini, and the influence of Galileo upon the visual arts. (5 units)

133. History of Design in Britain: 1750–2000

Overview of the history of design in Britain from the Industrial Revolution to the present. Examination of fashion, interior design, transport design, and personal items. Offered only through SCU in London, Foundation for International Education. (5 units)

135. European Art: 1780–1880

Analysis of the culture and art of Europe from the era of the French Revolution to the end of the 19th century. We will address the relationship between politics and art, shifting class structures, and the increasing importance of the industrial revolution. Painting, sculpture, architecture, and other media will be covered. (5 units)

137. Modern Art in Europe: 1880–1940

The emergence of Modernism in Europe from the 1880s to World War II. The major movements of Expressionism, Cubism, and Surrealism will be studied in the larger context of political, social, and economic change. Painting, sculpture, architecture, and other media will be covered. (5 units)

141. Native American Art: California and the Pacific Northwest

Visual culture of the native peoples of California and the Pacific Northwest, from prehistory to the present. Emphasis on the role of the artist in society and on artistic responses to political and cultural change. (5 units)

142. Native American Art: Special Topics

Sustained analysis of specific time period or genre of Native American art. Emphasis on 20th-century/contemporary art. Topics may include: tourism/market forces, land and cultural preservation, post-colonialism, gender identity. Research paper will be required. (5 units)

144. 18th- and 19th-Century American Art and Visual Culture

Visual and material arts from the Colonial period to the Gilded Age (c. 1880s). Issues examined may include the relationship between art and politics, self-fashioning through portraiture and the West. American national identity at home and abroad, landscape painting, photography, representations of democracy, citizenship, the Revolutionary and Civil Wars, and the creation of an audience for art in the United States. *Prerequisite: Cultures and Ideas I and II.* (5 units)

145. 20th-Century American Art and Visual Culture

Visual culture in the United States from the Gilded Age (1880s) to circa 1985. Issues examined may include the relationship to European modernism; art, politics and American national identity; the government as patron for the visual arts; and the founding of major visual arts institutions. Other issues that may be examined include the Harlem Renaissance, "regional" arts including California, and the solidifying of an art audience in the United States. *Prerequisite: Cultures and Ideas I and II.* (5 units)

152. Pre-Columbian Art: From Olmec to Aztec

Survey of the arts of the MesoAmerican region, from the Olmec to the Aztec. The Mayan civilization will be discussed at length; Peru and the Andes will not be covered. In addition to surveying the important sites and monuments of the cultures listed above, the course will focus on MesoAmerican concepts of time and space, the ritual calendar, warfare, blood sacrifice, shamanism, and the ballgame. (5 units)

162. Japanese Art Since 1850

This course examines the visual culture of modern Japan from 1860 to 1960, emphasizing in particular Japan's reaction to and engagement with the West. The course will be organized both thematically and chronologically, and will focus on two-dimensional arts prior to 1950 (painting, prints, photography). (5 units)

164. Islamic Art, 600–1350 C.E.

Study of the art and architecture of the Islamic world with an emphasis on Jerusalem, Baghdad, Cairo, and Spain. Topics of discussion include the origin of Islam, mosque design and ornament, desert palaces, the Muslim reaction to classical antiquity, 1001 Arabian Nights, the transmission of Arab science and medicine to the West, manuscript illumination, and the decorative arts. *Prerequisites: Upper-division status and at least two prior courses in art history.* (5 units)

183. Contemporary Art

Case-study driven course examining developments in the visual arts of the last 20 years, primarily in the United States. Emphasis on critical tools and methods for appreciating, analyzing, and researching traditional and contemporary art forms such as performance, installation, and video. Recent art controversies and landmark exhibitions will be addressed, along with the impact of consumer culture, feminism, and multiculturalism in the visual arts today. *Prerequisite: Upper-division standing and two art history courses or consent of instructor.* (5 units)

185. Post-Modern Art

An overview of significant issues and movements in art since the 1960s. Primary focus on art in the United States. Themes to be addressed: artist in nature, body in performance, new media, feminism, gender and sexuality, art in public places, censorship, art and public activism, emergence of global arts community. (5 units)

186. History of Photography

Examination of the social, political, and aesthetic aspects of photography from its inception in the 1830s to the present, primarily in the United States. Issues examined may include the creation and growth of popular and elite audiences for photography; journalistic, ethnographic, fashion and art photography; the role of photography in discourses of race, gender, and class; and photography in relation to modernism, postmodernism, and consumer culture. *At least one previous ARTH course strongly recommended.* (5 units)

188. Women in the Visual Arts

Historical and theoretical approaches to women in the visual arts, 18th century to the present. Issues examined may include the training and status of women artists, dealers, patrons and collectors, images of women, and the impact of women's studies and feminism on the study of the visual arts. *At least one ARTH class recommended or WGST 50, or permission of instructor.* (5 units)

195. Art History Thesis

Students with a GPA of 3.5 or better in the major may petition to write a thesis, typically in their senior year. The thesis will be based on a research paper written for a previous upper-division course with the same instructor. *Prerequisites: Senior standing, demonstrated excellence in the major field, and permission of the instructor.* (5 units)

196. Art History Seminar

Advanced topics in the history, theory, and methods of art history as a discipline. Recent challenges and expansions to the discipline, such as the study of visual and material culture, may be considered. Focus of the seminar will vary with instructor. Recommended for all art history majors in their junior or senior year. Course requirements will include one or more writing projects entailing multiple drafts. (5 units)

197. Special Topics

Occasional courses in selected art historical topics. May be repeated for credit. (5 units)

198. Internship/Practicum

Individual projects in conjunction with professional visual arts agencies. May be repeated for credit, but only four credits of ARTH 198 will count toward the major. *Prerequisite: Written proposal must be approved by on-site supervisor, art history faculty member, and department chair.* (2–5 units)

199. Directed Reading/ Directed Research

Individual guided reading, research, and/or writing on selected art historical topics. May be repeated for credit but no more than 5 units will count toward the major. *Prerequisite: Course outline, reading list, and schedule of instructor/student meetings must be approved by art history faculty member and department chair 10 days prior to registration.* (1–5 units)

LOWER-DIVISION COURSES: STUDIO ART

30. Basic Drawing

Introduction to various drawing media and techniques. Covers the use of line and contour, light and shadow, three-dimensional perspective and composition. Includes the concept of self-expression in traditional and contemporary drawing. Recommended as a foundation course, to be taken prior to other studio art courses. (4 units)

34. Drawing From Nature

Introduction to techniques and media for drawing wildlife in the field. Covers the use of line and contour, light and shadow, three-dimensional perspective and composition. Also covers the visual anatomy of birds. Scheduled only during Department of Biology summer travel programs offered through SCU International Programs. *Prerequisite: BIOL 157.* (4 units)

35. Basic Printmaking

Fundamentals of printmaking as an art form. Exploration of different media, such as linoleum and wood block carving, and the painterly medium of mono printing. (4 units)

43. Basic Painting

Introduction to painting, primarily with water-based acrylic paints. Through guided projects, students will develop a language of lines, shapes, colors, and composition to express their ideas visually. (4 units)

46. Basic Watercolor

Introduction to visual expression in the classic medium of transparent watercolor. Assignments will emphasize basic elements of shape, color, light, shadow, and composition. Previous experience in drawing recommended. (4 units)

50. Basic B/W Camera and Darkroom

Fundamentals of black-and-white photography as an art form, especially for the lower-division student. Includes basic camera vision and technique, and black-and-white darkroom work. Assignments attempt to stimulate visual awareness and individual creativity. *Camera with manual shutter speeds and aperture capabilities required.* (4 units)

51. Exploring Society Through Photography

Beginning to intermediate-level photography. Emphasis on black-and-white film and darkroom work. Includes the use of natural and artificial light in planned and semi-planned scenes of people and related subjects. Final projects appropriate to the interests and abilities of each student. Includes discussion of photography as it relates to contemporary fine art theory and practice. (4 units)

57. Digital Photography

For beginning to intermediate photo students wanting to develop creativity, composition, lighting and other techniques with their own digital still cameras. Camera features will be discussed and linked with visual assignments to lead students in shooting, exploring Adobe software, and printing through commercial "light-jet" services. Students must bring a camera that has manual control of shutter speeds and f-stops. Previous familiarity with any camera type is desirable, but not required. *Prerequisite: None.* (4 units)

63. Basic Ceramic Sculpture

Fundamentals of visual expression in clay, primarily through making ceramic sculpture. Especially suitable for the lower-division student. Guided exploration of various hand-building techniques and materials, including firing and glazing. May also include other techniques. (4 units)

64. Basic Sculpture

Fundamentals of making art in three-dimensional form, especially suitable for the lower-division student. Creative exploration of selected materials and techniques. Reductive, manipulative, and additive methods will be used as needed. Media varies each quarter at instructor's discretion. (4 units)

70. Art in the Computer Age

Taught using a combination of lecture, discussion, and hands-on computer art practices, this course explores the societal impact of the digital revolution in the arts. Presentations provide an overview of the ideas and technologies that contribute to "new media" art forms today. Hands-on activities include an introduction to art-making computer technology and XHTML coding. (4 units)

71. Digital Print Making

Taught using a combination of lecture, discussion, hands-on computer and traditional art practices, this course explores the societal impact of technology on the arts from the first printing press to computer output. Activities include an introduction to art-making computer technology and digital printmaking techniques. (4 units)

73. Intro to 3D Animation and Modeling

For advanced students who wish to pursue an art project not covered by courses in this bulletin, under the direction of a studio art faculty member. Group meetings to discuss progress with one another and with faculty member. May be repeated for credit. *Open to majors; nonmajors need consent of instructor.* (4 units)

74. Basic Computer Imaging

Hands-on introduction to computer imaging for the lower-division student. Fundamental instruction in raster and vector drawing software to manipulate photographs and create original imagery. Exploration of both fine art and commercial uses of digital media. Recommended as a foundation course, to be taken prior to other computer art courses. (4 units)

75. Basic Graphic Design

Hands-on computer course in the fundamentals of graphic design for the lower-division student. Projects lead students through page layout, creative use of type, effective communication, and other design issues. Emphasis on mastering desktop publishing software, with some use of raster and vector drawing software. Exploration of both fine art and commercial uses of digital media. *Prerequisite: ARTS 74 or 174, or consent of the instructor.* (4 units)

97. Special Projects

For lower-division students who wish to pursue an art project not covered in the Bulletin, under the direction of a studio art faculty member. Group meetings with the instructor to discuss progress. May be repeated for credit. *Open to majors and nonmajors with consent of instructor.* (4 units)

UPPER-DIVISION COURSES: STUDIO ART

100. Art for Teachers

Designed for liberal studies majors and others who plan to teach at the K-5 level. Includes introduction to human visual perception, art-making fundamentals, and the educational use of historical and cultural art works. Through hands-on art exercises, students will learn how to guide the child's natural tendency to create and respond to imagery. Does not include actual teaching experience with K-5 children, but satisfies the Domain 4: Visual Art Standard for the Multiple Subject waiver program. *Suggested prerequisite: Any art or art history course is recommended.* (5 units)

131. Life Drawing

Theory and practice of figure drawing. Emphasis on understanding the anatomy of the human form as a resource for visual expression. May be repeated for credit. *Prerequisite: ARTS 30 or consent of the instructor.* (5 units)

133. Advanced Drawing

Continuation of ARTS 30 with an emphasis on the study of perspective and the anatomy of light and shadow as they relate to drawing three-dimensional forms. *Prerequisite: ARTS 30 or consent of the instructor.* (5 units)

135. Printmaking

Continuation and extension of ARTS 35. Elaboration and refinement of printmaking. Also appropriate for the upper-division student who wants to learn the fundamentals of printmaking as an art form. May be repeated for credit. (5 units)

143. Painting

Continuation and extension of ARTS 43. Further study of various styles, techniques, and media in painting. Also appropriate for the upper-division student who wants to learn the fundamentals of painting as an art form. May be repeated for credit. (5 units)

144. Advanced Painting

Designed for the intermediate to advanced-level painting student. Assignments help students develop conceptual and formal strategies to create a series of related works that revolve around each student's individual artistic interests. Painting form and technique, as well as conceptual content and meaning, will be explored in depth, through practice and discussion. *Prerequisite: ARTS 43 or 143, or consent of the instructor.* (5 units)

148. Mixed Media Painting

An intermediate-level course exploring the theory and practice of combining painting with other artistic elements to create primarily two-dimensional works. With the instructor's supervision, projects may incorporate unusual surfaces, small objects, fragments of other artwork, or text. May be repeated for credit. *Prerequisite: Any other ARTS course.* (5 units)

150. Basic B/W Camera and Darkroom

Fundamentals of black-and-white photography as an art form, especially for the upper-division student. Includes basic camera vision and technique, as well as black-and-white darkroom work. Assignments stimulate visual awareness and individual creativity. *Camera with manual shutter speeds and aperture capabilities required. May be repeated for credit by consent of the instructor only.* (5 units)

151. Exploring Society Through Photography

For beginning to intermediate-level photo students interested in exploring social issues through photography. Emphasis on black-and-white photography and darkroom work. Includes the use of natural and artificial light in planned and semi-planned scenes of people and related subjects.

Includes a volunteering element and field trips, as well as discussion of photography as it relates to contemporary fine art theory and practice. Final projects appropriate to the interests and abilities of each student. May be repeated for credit. (5 units)

154. Intermediate Photography

The art and craft of black-and-white photography beyond the basic level. Covers the use of fiber-based papers and archival print processing in the darkroom. Students will also learn basic studio lighting techniques. Includes discussion of photography as it relates to contemporary fine art theory and practice. Projects appropriate to the interests and abilities of students. May be repeated for credit. *Prerequisite: ARTS 50 or 150 or consent of the instructor.* (5 units)

155. Photography on Location

Designed for intermediate students with film or digital cameras, who are interested in exploring the social and physical world in which we live. Includes both collaborative and individual shooting and printing projects, with field trips off campus to shoot on location, as well as visits to museums and related sites. Includes intermediate-level printing. Assignments consider the interests and abilities of each student. Includes discussion of contemporary photographic concepts and practice. May be repeated for credit. *Prerequisite: Any previous photography course, or consent of the instructor.* (5 units)

156. Photography and Mixed Media

Provides intermediate and advanced students an opportunity to learn alternative photography processes, such as cyanotypes, van dyke printing, and emulsion transfers. Students will also be able to use photography with textiles and other surfaces, hand made books, assemblage and sculpture. *Prerequisite: Any previous photography course, or consent of the instructor.* (5 units)

157. Digital Photography

For beginning to intermediate photo students wanting to develop creativity, composition, lighting and other techniques with their own digital still cameras. Camera features will be discussed and linked with visual assignments to lead students in shooting, exploring Adobe software, and printing through commercial "light-jet" services. *Students must bring a camera that has manual control of shutter speeds and f-stops.* Previous familiarity with any camera type is desirable, but not required. (5 units)

163. Ceramic Sculpture

Continuation and extension of ARTS 63. Fundamentals of visual expression in clay, primarily through making ceramic sculpture. Also appropriate for the upper-division student who wishes to explore various hand-building techniques and materials, including firing and glazing. May also include other techniques. May be repeated for credit. (5 units)

164. Sculpture

Continuation and extension of ARTS 64. Also appropriate for the upper-division student who wants to learn the fundamentals of sculpture as an art form. Creative exploration of selected materials and techniques. Reductive, manipulative, and additive methods will be used as needed. Media varies each quarter at instructor's discretion. May be repeated for credit. (5 units)

165. Advanced Ceramics

Suitable for the intermediate and advanced student. In-depth exploration of various hand-building techniques for creating ceramic sculpture, and related work. Includes discussion of aesthetic issues in contemporary ceramic art. Emphasis will be on the development of each student's artistic and technical interests and abilities, toward the goal of creating an individual collection of works. May be repeated for credit. *Prerequisite: ARTS 63 or 163, or consent of instructor.* (5 units)

173. Intro to 3D Animation and Modeling

Continuation and extension of ARTS 73. For advanced students who wish to pursue an art project not covered by courses in this bulletin, under the direction of a studio art faculty member. Group meetings to discuss progress with one another and with faculty member. May be repeated for credit. *Open to majors; nonmajors need consent of instructor.* (5 units)

174. Computer Imaging

Hands-on course in the fundamentals of computer imaging for the upper-division student. Introduction to the use of raster and vector drawing software to manipulate photographs and create original imagery. Exploration of both fine art and commercial uses of digital media through comprehensive assignments. May be repeated for credit by consent of the instructor only. (5 units)

175. Graphic Design

Hands-on computer course in the fundamentals of graphic design for the upper-division student. Projects lead students through page layout, creative use of type, effective communication, and other design issues. Emphasis on mastering desktop publishing software, with some use of raster and vector drawing software. Exploration of commercial and artistic uses of digital media through comprehensive assignments. May be repeated for credit. *Prerequisite: ARTS 74 or 174, or consent of the instructor.* (5 units)

176. Advanced Computer Imaging

Designed for the intermediate-to-advanced level digital imaging student. Assignments help students develop conceptual and formal strategies to create a series of related works that center around each student's individual artistic interests. Raster- and vector-based imaging technique, as well as conceptual content and meaning, will be explored in depth through practice and discussion. *Prerequisites: ARTS 74 or 174 and ARTS 75 or 175, or consent of the instructor.* (5 units)

177. Constructing Web Sites

An intermediate- to advanced-level course in designing Web sites. Theoretical discussions and practical application of Web design, through the creation of multiple Web sites through both hand-coding and Web page layout applications. *Prerequisites: ARTS 70 and one course from ARTS 74, 75, 174, 175, or consent of the instructor.* (5 units)

178. Advanced Graphic Design

In-depth exploration of graphic design through advanced projects. Students will concentrate on the use of professional templates and guidelines to explore both the fine art and commercial uses of digital media within graphic design. Experimentation and creative play through advanced applications and practices. May be repeated for credit. *Prerequisites: ARTS 74 or 174 and ARTS 75 or 175, or consent of the instructor.* (5 units)

179. Multimedia/Interactive Projects

In-depth exploration of animation, digital storytelling, and interactivity. Students create storyboards, flipbooks, and vector/raster based animation. Sound and interface design will be explored to create interactive experiences on the computer. May be repeated for credit. *Prerequisites: ARTS 74 or 174 and ARTS 75 or 175, or consent of the instructor.* (5 units)

196. Studio Art Seminar

Exploration of and preparation for primarily academic post-graduate options in studio art. Includes portfolio and presentation development, artist statements and résumé writing, and photographing artwork. Also includes field trips to studios of artists, designers, and graduate schools. (5 units)

197. Special Projects

For advanced students who wish to pursue an art project not covered by courses in this Bulletin, under the direction of a studio art faculty member. Group meetings to discuss progress with one another and with faculty member. May be repeated for credit. *Open to majors; nonmajors need consent of instructor.* (1–5 units)

198. Internship/Practicum

Individual projects in conjunction with a professional visual arts organization. Variable units. May be repeated for credit. *Prerequisite: Written proposal must be approved by supervisory studio art faculty member and department chair.* (5 units)

199. Directed Research/ Creative Project

Tutorial work in studio art. May be repeated for credit, but no more than 5 units will count toward the major. *Prerequisite: Course outline and schedule of instructor/student meetings must be approved by studio art faculty member and department chair 10 days prior to registration.* (1–5 units)

DEPARTMENT OF BIOLOGY

Professors Emeriti: Thomas N. Fast, John S. Mooring
Professors: Janice Edgerly-Rooks *(Department Chair),* William R. Eisinger, Dennis R. Parnell, S.J.
Associate Professors: Elizabeth P. Dahlhoff, James L. Grainger, Ángel L. Islas, Michelle A. Marvier, Leilani M. Miller, Craig M. Stephens, David L. Tauck
Assistant Professors: David C. Hess, Justen Whittall

The Department of Biology offers a program leading to the Bachelor of Science degree. The major provides students a broad background in biology, while allowing the opportunity to explore particular areas of biology in greater depth. The biology major serves as a strong foundation for graduate, medical, or professional studies, as well as for careers in teaching, research, and business. Most courses emphasize laboratory or field work, and students are also encouraged to work with faculty on research projects. Minor degrees in biology and related disciplines (biotechnology, biomedical engineering, and environmental studies) are available. The Biology Department also offers courses that satisfy the natural science requirement of the University Core Curriculum, which are available to all University students who are curious about the nature of life. Numerous study abroad opportunities in the life sciences, both for biology majors and nonmajors, are available through the International Programs office. Students are encouraged to participate in original research as part of their undergraduate training. Most faculty members involve students in their research programs; opportunities also exist at neighboring institutions. Qualified students can obtain course credit for research by enrolling in BIOL 198.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the University Core Curriculum requirements for the Bachelor of Science degree, students majoring in biology must complete the following departmental requirements:

- BIOL 21, 22, 23, 24, 25
- CHEM 11, 12, 13, 31, and 32 (CHEM 33 also suggested)
- PHYS 11, 12, 13 or PHYS 31, 32, 33
- MATH 11, 12 (MATH 9 is a suitable introduction to MATH 11 for students preparing for calculus)
- A minimum of seven approved upper-division biology courses, including five with a laboratory.

Five of the seven upper-division courses must be from one of three areas of emphasis: biomedical sciences, cellular and molecular biology, or ecology and evolution. Students who desire to approach their upper-division studies in a manner that is not well represented by these emphases may develop an integrative biology plan for upper-division coursework by organizing a coherent series of courses in consultation with their advisor. Integrative biology plans must be approved by the department chair and must be submitted no later than the junior year.

REQUIREMENTS FOR THE MINORS

Students must fulfill the following requirements for a minor in biology:

- Three upper-division biology courses, including two with a laboratory component

Minors in Related Areas

Biotechnology Minor is designed for students interested in gaining insight into the science underlying biotechnology, exploring its potential for the future, and obtaining practical experience in laboratory techniques used in biotechnology research and its applications. See Chapter 6, Interdisciplinary Minors and Other Programs of Study for details.

Environmental Studies Minor provides an opportunity for students to focus on environmental issues through a variety of academic approaches in the humanities, social and natural sciences, engineering, and law. See Environmental Studies in this chapter for details.

Biomedical Engineering Minor is designed primarily for science majors in the College of Arts and Sciences. This minor could be a valuable asset for science majors interested in biomedical research and/or health-related careers, including those completing prerequisites for medical school and other health-related professional schools. See Chapter 5, School of Engineering, for details.

PREPARATION IN BIOLOGY FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach biology in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. Students who are contemplating secondary school teaching in biology should consult with the coordinator in the Department of Biology as early as possible. The secondary teaching credential requires the completion of an approved credential program that can be completed as a fifth year of study and student teaching, or internship.

LOWER-DIVISION COURSES

2. Human Health and Disease

Examination of human health and disease. Topics include what constitutes health, the nature of disease, how disease is studied, health promotion and life success strategies. Emphasis on homeostasis, human immunologic and systemic response to infectious and noninfectious diseases. Related discussions of important human infections, heart disease, cancer, health impact of nutrition, reproductive health, human genetics and community health issues. (4 units)

3. Fitness Physiology L&L

Survey of how the human body functions to maintain a state of wellness. Exploration of the short-term responses to exercise and discussion of how the body responds to long-term training programs. At the end of the course, students should be able to examine the design of exercise physiology experiments, as well as understand and interpret reports of health and exercise news in the popular press. Laboratory 15 hours. (4 units)

4. Light and Life L&L

Focus on the importance of plants and photosynthesis for the future of life on earth. Issues addressed include food production, plants as renewable energy sources, "greenhouse effect," and other ecological interactions involving plants. In the laboratory, students design experiments to examine the effects of environmental changes on plants. Laboratory 15 hours. (4 units)

5. Endangered Ecosystems L&L

An overview of earth's ecosystems and the major factors contributing to the loss of biodiversity. Three major themes: (1) general ecological principles, especially focused on the structure and function of ecosystems; (2) factors contributing to the endangerment of ecosystems; and (3) the conservation of ecosystems and biodiversity. Global environmental problems, including several lectures highlighting current environmental and conservation issues here in California and within the San Francisco Bay Area. Laboratory 15 hours. (4 units)

6. Oceans L&L

Examination of major ocean ecosystems and their inhabitants, with special attention paid to issues of governmental policy, sustainability, and human impacts on marine ecosystems. Laboratory and field activities will emphasize hands-on exploration of local marine habitats. Laboratory 15 hours. (4 units)

9. Cancer L&L

If present trends continue, 40 percent of the people in the United States will be diagnosed with some form of invasive cancer during their lifetime, and two out of every three households in the United States will have someone affected by cancer. What is cancer? How does it arise? How is it stopped? This course is designed to present the basic biology of cancer: how DNA is damaged and either repaired or mutated; how several mutations in a cell can give rise to a benign tumor; how a benign tumor becomes malignant; and how it ultimately invades other tissues and spreads throughout the body. The course will also present information on how doctors fight this multi-step disease. Laboratory 15 hours. (4 units)

14. The Heart and Its Challenges

This course explores the science behind the challenges faced by our hearts as well as our personal and medical response to those challenges. To do this we will examine the functioning of the heart in the context of the cardiovascular system as a whole, and then observe some of the most common ways in which its functioning is challenged. We will then look at how heart problems are clinically diagnosed and treated and evaluate

some of the various medications, supplements, diets and regimens that are proposed for maintaining a healthy heart. (4 units)

15. The Human Embryo L&L

Exploration of two major themes: a basic understanding of the biology of human reproduction and development; how our basic knowledge of human reproduction is being used by medical science to assist in reproductive processes and correct developmental errors. Case-based discussions will focus on topics that include genetic screening, stem cell research, in vitro fertilization, and environmental toxins and their effects on embryo development. Laboratory experiments will be linked to the case studies to illustrate the techniques and issues raised by these topics. Laboratory 15 hours. (4 units)

18. Exploring Biotechnology L&L

Exploration of contemporary biotechnology and the underlying science—how DNA, genes, and cells work. Laboratory experiments focus on DNA in a variety of contexts. Laboratory 15 hours. (4 units)

19. Biology for Teachers L&L

Specifically designed for candidates for Multiple Subject Teaching Credentials. Provides an overview of the life sciences, focusing on physiology and cell biology, ecology, genetics, and evolution. In addition, laboratory experiences introduce students to the scientific method, experimental design, data collection and analysis, and communication. Laboratory 15 hours. (4 units)

21. Introduction to Physiology

Introduction to general principles underlying homeostasis, and the relationship of anatomical form to biological function. The course will introduce students to the organization and function of cells, cellular metabolism, energy, nutrition, regulation, communication, gas exchange, circulation, and osmoregulation. *Prerequisite: Completion of or concurrent enrollment in CHEM 11.* (4 units)

22. Introduction to Evolution and Ecology

Introduction to key concepts in evolution and ecology, including Mendelian and population genetics, natural selection and adaptation, phylogenetics and biodiversity, demography, and interactions among organisms and their environments. *Prerequisites: BIOL 21 and completion of or concurrent enrollment in CHEM 12.* (4 units)

23. Investigations in Evolution and Ecology L&L

Introduction to experimental and statistical approaches used in modern ecological and evolutionary studies, with an emphasis on experimental design, data analysis, interpretation and presentation. Builds on concepts presented in BIOL 22. Fieldwork and laboratory exercises (30 hours) will take advantage of the diversity of local terrestrial and marine ecosystems. *Prerequisites: BIOL 22 and completion of or concurrent enrollment in CHEM 13.* (5 units)

24. Introduction to Cellular and Molecular Biology

An introduction to the cell and molecular fundamentals necessary for life. Topics include macromolecular structure, enzyme function, membrane structure and physiology, metabolism, bioenergetics, the cell cycle, and DNA replication, transcription, and translation. *Prerequisites: BIOL 21 and completion of or concurrent enrollment in CHEM 31.* (4 units)

25. Investigations in Cellular and Molecular Biology L&L

An introduction to experimental methods for studying the cellular and molecular basis of life. Builds on the concepts covered in BIOL 24. Topics include enzyme function and kinetics, cell reproduction, Mendelian and molecular genetics, and molecular biology. The topics are explored through laboratory work, with emphasis placed on the analysis, interpretation, and presentation

of experimental data. Laboratory 30 hours. *Prerequisites: BIOL 24 and completion of or concurrent enrollment in CHEM 32.* (5 units)

28. Human Sexuality

This course will examine the biological foundations of human sexuality. The objective of this course is to provide current and accurate information about the biological, psychological and social aspects of human sexuality. This will include the anatomy, physiology and neurobiology of sex, gender and sexual orientation. Among the topics discussed will be sexually transmitted infections (including HIV/AIDS), conception and pregnancy, contraception and abortion and sexual dysfunctions. (4 units)

99. Special Topics

Investigation of a specific area or topic in the biological sciences. Open to majors and nonmajors. *Prerequisite: Approval of department chair.* (4 units)

UPPER-DIVISION COURSES

100. Hot Topics in Biology

A forum for the discussion of contemporary issues in the life sciences. The general theme for the course changes each year. Biology faculty discuss topics of intense current scientific interest, and often social relevance, highlighting recent research. Students may take the course more than once for credit, but BIOL 100 does not count as one of the seven upper-division biology courses required for the major. (Pass/no pass, 2 units)

104. Human Anatomy L&L

An exploration of the structure, organization, and functional relationships of human anatomical systems. (Laboratory dissections use alternative vertebrates.) Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

109. Genetics and Society

Upper-division course designed for nonscience majors interested in exploring the interplay between the social, scientific, and technological dimensions of human genetics. In addition to studying the nature of DNA (the genetic material), students will study the social and technological dimensions of current topics in genetics, including the Human Genome Project, paternity testing, crime scene investigation, embryo testing to select specific genotypes, personalized medicine, evolution, etc. This course will fulfill the natural science nonlab requirement, but will not fulfill an upper-division biology requirement for biology majors. *Prerequisite: Natural science course (with lab) or permission of instructor.* (5 units)

110. Genetics L&L

Basic principles governing inheritance and gene expression in viruses, prokaryotes, and eukaryotes. Emphasis on molecular aspects. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

111. Parasitology

A lecture and demonstration course covering the microbiology of parasites. Emphasis placed on the biology of parasites, the spectrum of symbiotic relationships among organisms, salient features that all parasitic diseases have in common, emerging trends in epidemiology, the complex nature of human interactions with microorganisms, and impacts of human behavior and socioeconomic factors on the prevalence of parasitic diseases. *Prerequisite: BIOL 25.* (5 units)

112. Pathogenic Microbiology L&L

Study of disease-producing pathogens. Lecture emphasis on pathogen biology, host immune response, cellular pathogenesis, epidemiology, clinical disease and community control of infection. Laboratory emphasis on methodology used to recover,

characterize and identify important human bacterial pathogens using biochemical, morphologic, and genetic identification techniques. Laboratory 30 hours. *Prerequisite: BIOL 25. Recommended: BIOL 113.* (5 units)

113. Microbiology L&L

An introduction to the biology of microorganisms, with emphasis on the molecular and cellular biology of bacteria, the diversity of microbial life, and the roles of microorganisms in human health and disease. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

114. Immunology

Principles, mechanisms, and techniques of humoral and cellular aspects of the immune response. Immediate and delayed hypersensitivity, tissue transplantation, tumor immunology, and immunodeficient states in humans. *Prerequisite: BIOL 25.* (5 units)

115. Human Reproduction and Development

Detailed study of the development and function of the male and female reproductive systems, gametogenesis, fertilization and implantation, and the anatomy of the heart, circulatory, nervous, and skeletal systems during embryogenesis. Where appropriate the molecular mechanisms controlling the determination of these developing systems will be examined. *Prerequisite: BIOL 24.* (5 units)

120. Animal Physiology L&L

Examination of physiological systems in animals, focusing on contrasting strategies for maintaining homeostasis during stress, exercise, starvation, and life in extreme environments. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

122. Neurobiology L&L

Study of the molecular basis of neurobiology: how the nervous system is structured, how neurons form connections and relay information between each other, and finally how specific components of the nervous system function together to perceive the environment around us. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

124. Human Physiology L&L

Examining the physical and chemical basis of human life, this course focuses on the neural and endocrine control of physiologic processes to maintain homeostasis. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

125. Plant Physiology L&L

Physiological processes of plants, with emphasis on current research in the field. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

127. Drugs and Toxins in Human Biology

Pharmacology is the study of how therapeutic drugs work, while toxicology, a closely related field, deals with the problems toxins produce. General principles of drug and toxin uptake, metabolism, distribution, and elimination will be covered, as will the major groups of therapeutic drugs. Important sources of toxins, and their effects on humans, will also be discussed. *Prerequisite: BIOL 25.* (5 units)

128. Plant Development L&L

Developmental processes of plants, with emphasis on current research and experimental approaches. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

129. Human Physiology

Examining the physical and chemical bases of human life, this course focuses on the neural and endocrine control of physiological processes to maintain homeostasis. (5 units)

131. Agroecology L&L

The goal of agroecology is to reduce the negative environmental impact of farming, while meeting the food needs of the world. Course examines current agricultural practices and evaluates alternative methods, including organic farming, agroforestry, and applications of agricultural biotechnology. The special problems of agriculture in the developing world are discussed. Laboratory 30 hours. *Prerequisite: BIOL 24.* (5 units)

133. Ecology of California Plant Communities L&L

This course focuses on the factors controlling plant community composition in California, with emphasis on the basic question of plant ecology: Why are these plants here? Field trips highlight the astounding diversity of the California floristic province, emphasizing identification of plant species and sampling methods for ecological studies. Laboratory and field work 30 hours. *Prerequisite: BIOL 23.* (5 units)

134. California Plant Diversity L&L

This course surveys the major angiosperm families in California, relies heavily on using taxonomic keys to identify California plants to species, and investigates evolutionary patterns characteristic of the California flora through a combination of lab and substantial field experiences. Lab and field work 30 hours. *Prerequisite: BIOL 23.* (5 units)

136. Arctic Biology: From Ecology to Genomics

The Arctic environment poses unique challenges to all of its inhabitants. This field/lab course investigates the tundra ecosystem, emphasizing adaptations to the cold, short growing season and long day-length by both plants and animals (including humans). Students will gain first-hand research experience by conducting a research project that integrates Arctic ecology and genomics. Upon returning from Alaska, students will apply genomic-scale tools to Arctic biology using quantitative PCR, microarrays, and Next Gen sequencing technologies. Meets weekly during spring quarter; field/lab components occur in the first four weeks of summer. *Prerequisite: Consent of instructor.* (5 units)

145. Virology

Biology of viruses: their structure, evolutionary origins, classification, genetics, laboratory propagation and diagnostic methods, viral pathogenesis, response of host cells to viral infection and salient aspects of the epidemiology of viral diseases. The focus will be on viruses that infect eukaryotic cells, emphasizing important viral groups that infect humans. *Prerequisite: BIOL 25.* (5 units)

150. Conservation Biology L&L

Explores the applications of ecological and genetic principles to the conservation of biological diversity. Emphasis on quantitative tools, including trend analysis, population viability analysis, and population genetics. Laboratory and fieldwork involve exercises with local plants and animals, as well as computer exercises using data for endangered species. Laboratory and field work 30 hours. *Prerequisite: BIOL 23.* (5 units)

151. Restoration Ecology L& L

The science and practice of restoring degraded ecosystems, with an emphasis on plant ecology. Through fieldwork in restoration experiments and examination of literature case studies, students will grapple with basic questions: How do we decide what to restore? How do we restore it? And how do we know if we're finished? Emphasis on reading and writing scientific papers, working with data, and critically judging the success of restoration projects in meeting goals of biodiversity and ecosystem function. Laboratory and field work 30 hours. *Also listed as ENVS 151. Prerequisite: BIOL 23.* (5 units)

156. General Ecology L&L

Quantitative study of the interrelationships of organisms with their biotic and abiotic environments. Emphasis on population dynamics, interspecific relationships, community structure, and ecosystem processes. Laboratory and field work 30 hours, including one weekend field trip. *Also listed as ENVS 156. Prerequisites: BIOL 23 and MATH 11.* (5 units)

157. Environmental Biology in the Tropics

Summer course that examines tropical biology and ecology and their relationship to issues of sustainable development. Coursework on campus is followed by a field excursion to a study abroad site, lasting about three weeks. Timing varies each year. Topics include ecotourism and its impact on local habitats and communities, ecology of tropical fauna and flora, and environmental problems specific to tropical nations. This course is taught in conjunction with other SCU courses, such as political science, which are required of all participants. Enrollment by application via International Programs. *Also listed as ENVS 141. Prerequisite: BIOL 23.* (5 units)

158. Biology of Insects L&L

An introduction to basic and applied aspects of insect biology, with emphasis on evolution, morphology, physiology, and behavior of insects and related arthropods. Also includes a review of important agricultural, medical, forestry, and veterinary pests. Laboratory and field work 30 hours. *Prerequisite: BIOL 24.* (5 units)

160. Biostatistics L&L

A course in applied statistics for biologists and environmental scientists planning to conduct manipulative experiments. Students gain training in experimental design, quantitative analysis, and hypothesis testing. Theory and concepts are covered in lectures and readings. Laboratory sessions provide practical experience in computing statistical procedures by hand and with statistical software. Examples used in lectures and lab assignments are derived from medical research, physiology, genetics, ecology, and environmental risk assessment. Laboratory 30 hours. *Also listed as ENVS 110. Prerequisite: BIOL 23.* (5 units)

165. Animal Behavior L&L

Examination of the behavior of animals in nature using an organizational scheme that recognizes proximate, or immediate, causes of behavior and evolutionary bases for behavior. Topics include physiological correlates of behavior, perception of natural stimuli (light, sound, chemicals), and behavioral ecology of foraging, mating systems, parent-offspring relationships, and social behavior. Laboratory 30 hours. *Prerequisite: BIOL 23.* (5 units)

171. Ethical Issues in Biotechnology and Genetics

An interdisciplinary consideration of contemporary biotechnology, and the ethical implications inherent in the development and use of such technology. Topics include human cloning, stem cell research, human genome project, genetic testing, gene therapy, genetically modified organisms, personalized medicine, clinical trials, and public policy. BIOL 171 satisfies a biotechnology minor requirement but NOT the ethics requirement. When taken concurrently with BIOL 189, it satisfies an upper-division biology major requirement. It also fulfills the third Religious Studies requirement. *Prerequisite: BIOL 24 or permission of instructor. BIOL 25 is strongly recommended.* (5 units)

173. Evolution L&L

Examination of advanced concepts of modern evolutionary biology. Topics include the evolutionary forces of microevolution, the evolution of sex, adaptation, speciation, human evolution, molecular evolution, and macroevolutionary phenomena deciphered

from phylogenetic trees. Laboratory experiments, field study, and computational activities 30 hours. *Prerequisite: BIOL 24. Recommended: BIOL 110.* (5 units)

174. Cell Biology L&L

Study of the function of cellular organelles and the signaling pathways that control cell reproduction. Topics include a detailed discussion of the structure of cell membranes, nuclear and chromosome structure, DNA replication, the microtubule and microfilament cytoskeleton, mitosis, mechanisms of cell motility, cell cycle regulation, and apoptosis. Laboratory experiments focus on cell cycle regulation and cell differentiation. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

175. Molecular Biology L&L

An introduction to the maintenance and flow of genetic information at the level of protein-nucleic acid interactions. Lectures focus on basic molecular biology concepts and recombinant DNA technology. Laboratory 30 hours. *Prerequisite: BIOL 25.* (5 units)

176. Biotechnology Lab – Recombinant DNA Technology L&L

Explores techniques for the analysis of DNA, and the construction and manipulation of recombinant DNA molecules. Laboratory meets twice each week. Lectures discuss the scientific basis for the lab methods, and their application in biomedical research and the biotechnology industry. Laboratory 60 hours. *Prerequisites: BIOL 25 and at least one upper-division biology laboratory course. (Does not include field courses.) BIOL 175 recommended.* (5 units)

177. Biotechnology Lab – Gene Expression and Protein Purification L&L

Explores principles and techniques for expression and purification of recombinant proteins. Laboratory meets twice each week and will use techniques such as column chromatography, mammalian tissue culture, and various gene expression systems. Lectures discuss the theory behind the methods used in lab, as well as their application in basic and applied research. Laboratory 60 hours. *Prerequisites: BIOL 25 and at least one upper-division biology laboratory course. (Does not include field courses.) BIOL 175 recommended.* (5 units)

178. Bioinformatics

Bioinformatics tools are important for storing, searching, and analyzing macromolecular sequences and structures. This course in applied bioinformatics provides an in-depth survey of modern bioinformatics tools. Students will become proficient at searching GenBank, downloading and analyzing sequences, and working with metadata. Each student will write an original computer program to complete an independent research project. Software tools for functional and evolutionary analysis of nucleic acids and proteins will also be examined. *Prerequisite: BIOL 25. BIOL 175 recommended.* (5 units)

179. Cancer Biology L&L

Introduction to the molecular and cellular basis of cancer. Introduction to the pathology of cancer. How basic processes such as cell growth, cell cycle control, and cell death are affected by molecular changes in oncogenes and tumor-suppressor genes. Laboratory uses molecular and cytogenic tools important in cancer diagnosis. *Prerequisite: BIOL 25.* (5 units)

180. Marine Physiological Ecology L&L

Examines principles of oceanography, biology and ecology of the oceans, focusing on investigation of the diversity of marine organisms and ecosystems of California. Laboratory and field work 30 hours. *Prerequisite: BIOL 24.* (5 units)

187. Biology of Aging

Analysis of the human aging process. The biological, medical, social, and ethical issues associated with aging in America. Topics include theories of aging, cancer, osteoporosis, sexuality, health-care costs, and death. Open to all students. Does NOT count toward a major or minor in biology. (5 units)

189. Topics in Cell and Molecular Biology

Seminar dealing with contemporary research in cellular and molecular biology and biotechnology. Students are required to lead discussions and participate in critical analysis of recently published research articles. Does NOT count as an upper-division course toward a major or minor in biology, but allows BIOL 171 to count as an upper-division biology course for the biology major or minor when BIOL 189 and BIOL 171 are taken during the same quarter. BIOL 189 may be taken up to two times for credit. *Prerequisites: Completion or concurrent enrollment in Genetics, Cell Biology, Microbiology, or Molecular Biology. Students who have completed BIOL 25 are welcome to attend and participate in the discussion of these topics but may not take the course for credit until they have completed one of the prerequisites.* (3 units)

190A and 190B. Contemporary Issues in Biology

Specialized treatment of some aspect of biology of current interest to the biologist as well as to society in general. *Prerequisites will be specified according to topic.* (5 units)

191. Project Lab: Biotechnology

Project lab is an intensive, research-oriented course where students conduct projects directly related to the study of DNA damage and repair, important processes involved in cancer and aging. The class will use current cellular and molecular approaches and will emphasize critical thinking, experimental design, and scientific communication. Fulfills the Biotechnology laboratory requirement for the minor. Laboratory 60 hours. *Prerequisites: BIOL 25 and at least one upper-division laboratory course (does not include field courses). BIOL 175 recommended.* (5 units)

192. Topics in Conservation Biology

Seminar focusing on current journal articles in the field of conservation biology. Students are required to lead discussions and participate in the critical analysis of these articles. *Prerequisites: Completion of or concurrent enrollment in BIOL 150, BIOL 156, or BIOL 155, or consent of instructor.* (5 units)

198. Internship and Undergraduate Research

Students wishing to take either 198A or 198B should have a GPA of 3.0 or better in biology and must present an outline of their projected research to the chair not later than the fifth week of the term preceding the start of the project. *Prerequisite: Departmental and University permission.* (1–5 units)

198A. Internship

Research in off-campus programs under the direct guidance of cooperating research scientists and faculty advisors. (1–5 units)

198B. Research

Supervised laboratory research culminating in a written report suitable for publication. Sustained for one year with credit given for one term. (1–5 units)

199. Directed Reading and Research

Detailed investigation of a specific topic in biology under the close direction of a faculty member. Students wishing to take this course should have a GPA of 3.0 or better in biology and must present an outline of their projected research to the department chair not later than the fifth week of the term preceding the start of the project, which will continue for one term only. *Prerequisite: Departmental and University permission.* (1–5 units)

DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

Professors Emeriti: Lawrence C. Nathan, Robert J. Pfeiffer, Michael A. Sweeney
Professors: John C. Gilbert *(Department Chair),* Patrick E. Hoggard *(Fletcher Jones Professor),* W. Atom Yee
Associate Professors: Linda S. Brunauer, Michael R. Carrasco, Brian J. McNelis, Amy M. Shachter
Assistant Professors: Thorsteinn Adalsteinsson, Amelia Fuller *(Clare Boothe Luce Professor),* Steven W. Suljak, Korin E. Wheeler
Senior Lecturer: Steven L. Fedder

The Department of Chemistry and Biochemistry offers three baccalaureate degrees: the Bachelor of Science in Chemistry, the Bachelor of Science in Biochemistry, and the Bachelor of Arts in Chemistry. The curriculum is accredited by the American Chemical Society, the professional organization for chemistry. The program prepares students for further work in chemistry, either in graduate school or as professional chemists. In addition, a chemistry degree is excellent preparation for careers in medicine, dentistry, law, engineering, business, and teaching. A minor in chemistry is also available.

All Bachelor of Science degrees provide graduates with the background necessary to begin a career in chemistry at industrial and governmental laboratories, for admission to institutions offering graduate degrees in chemistry and biochemistry, and to medical and dental schools as well as other professional programs in the health professions. The chemistry major provides equal training in all the disciplines in chemistry, and the biochemistry major combines training in chemistry with additional coursework in cell and molecular biology. The Bachelor of Science-ACS certified degrees meet all recommended standards for chemists and biochemists as mandated by the American Chemical Society.

The Bachelor of Arts degree allows students the most freedom in choosing electives, and therefore is an excellent program for pre-medical or pre-teaching students. Students with a strong interest in the liberal arts or who wish to pursue subjects outside the standard science curriculum will benefit from this degree. The Bachelor of Arts degree can be effectively combined with a pre-law or business curriculum to provide excellent preparation for law or business careers in the technology sector.

Undergraduate research is a critical component of our degrees and most of our majors conduct research in collaboration with chemistry faculty mentors. Research in the department has been funded by the National Institutes of Health, the National Science Foundation, the Howard Hughes Medical Institute, the American Chemical Society Petroleum Research Fund, the Dreyfus Foundation, and the Research Corporation. Majors in chemistry, biology, and combined sciences participate in faculty research projects through CHEM 182, 183, and 184. In addition, advanced students have opportunities for part-time employment assisting faculty in laboratory and related teaching activities.

The chemistry and biochemistry curricula are designed to be flexible in the sequence of upper-division coursework so as to allow students to participate in study-abroad programs. Students interested in study abroad should meet with a faculty advisor to plan the junior and senior year courses as early as possible in their academic careers.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science or Bachelor of Arts degrees, students majoring in chemistry and biochemistry must complete the following departmental requirements for each degree option:

Bachelor of Science in Chemistry

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 102, 111, 141, 151, 152, 154
- Three upper-division chemistry electives
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33; or PHYS 11, 12, 13

Bachelor of Science in Chemistry – ACS Certified

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 102, 111, 141, 150, 151, 152, 154
- CHEM 183, 184
- Two upper-division chemistry electives
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33

Bachelor of Science in Biochemistry

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 101, 111, 141, 142, 143, 150, 151 or 152
- Two additional upper-division chemistry electives; BIOL 110, 113, 174, or 176 may be taken to satisfy one of these two electives
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33; or PHYS 11, 12, 13
- BIOL 21, 24, 25, 175

Bachelor of Science in Biochemistry – ACS Certified

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 101, 111, 141, 142, 143, 150, 151 or 152, 154
- CHEM 183, 184
- Two additional upper-division chemistry electives; BIOL 110, 113, 174, or 176 may be taken to satisfy one of these two electives
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33
- BIOL 21, 24, 25, 175

Bachelor of Arts in Chemistry

- CHEM 11, 12, 13, 15, 31, 32, 33
- CHEM 101 or 102, 111, 141, 150 or 151 or 152
- Two additional upper-division chemistry electives
- Upper-division lab requirement: 30 hours, which can be satisfied by CHEM 102, 143, 154, or one unit of CHEM 182
- Four quarters of CHEM 115
- MATH 11, 12, 13
- PHYS 31, 32, 33; or PHYS 11, 12, 13

Chemistry electives for all degrees can be fulfilled by taking any upper-division chemistry class of three units or more, including CHEM 183 and 184.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in chemistry:

- CHEM 11, 12, 13, 31, 32, and 33
- Twelve units of upper-division chemistry courses

PREPARATION IN CHEMISTRY FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach chemistry in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. The secondary teaching credential requires the completion of an approved credential program that can be completed as a fifth year of study and student teaching, or through an undergraduate summer program and internship. Students who are contemplating secondary school teaching in chemistry should consult with the coordinator in the Department of Chemistry as early as possible.

LOWER-DIVISION COURSES

Note: No course offered by the Department of Chemistry is subject to challenge, i.e., to fulfillment by a special examination.

1. Chemistry and the Environment

A survey of the role of chemistry in major environmental issues such as global warming, acid rain, ozone depletion, photochemical smog, persistent organic pollutants, fossil fuel, nuclear and renewable energy, recycling and environmental fate of pollutants. Laboratory 3 hours every other week. (4 units)

2. Chemistry in the Modern World

Some of the most fundamental principles of chemistry are presented along with many examples of the role of chemistry in consumer, environmental, and human health applications. (4 units)

5. Chemistry: An Experimental Science

A survey of modern chemical applications, including applications to health, the environment, and consumer issues, and an introduction to the scientific method of inquiry. Laboratory 3 hours every other week. (4 units)

11. General Chemistry I

Topics include chemical properties and reactions, thermochemistry, stoichiometry, quantitative problem-solving, and an introduction to ionic and covalent chemical bonding. Laboratory 3 hours per week. (5 units)

11H. General Chemistry I Honors

Accelerated treatment of CHEM 11 material and presentation of other topics not normally covered in general chemistry. Laboratory 3 hours per week. Prerequisite: Grade of at least "3" on the Chemistry advanced placement test and permission of instructor or participation in University Honors Program. (5 units)

12. General Chemistry II

Subjects include properties of solids, liquids, and gases, properties of solutions, chemical kinetics, properties of acids and bases, and an introduction to chemical equilibria. Several lectures deal with special topics chosen at the discretion of the instructor. Laboratory 3 hours per week. *Prerequisite: CHEM 11 with a grade of C– or better.* (5 units)

12H. General Chemistry II Honors

Accelerated treatment of CHEM 12 material and presentation of other topics not normally covered in general chemistry. Laboratory 3 hours per week. *Prerequisite: Strong performance in CHEM 11H or CHEM 11 and permission of instructor or participation in University Honors Program.* (5 units)

13. General Chemistry III

Topics include aqueous equilibrium, acid-base chemistry, chemical thermodynamics, electrochemistry, spectroscopy, and statistical tools required for data analysis. The laboratory introduces quantitative analysis methods such as titration, spectroscopy, and electrochemistry. Laboratory 4 hours per week. *Prerequisite: CHEM 12 with a grade of C– or better.* (5 units)

15. Introduction to Research

This course introduces students to opportunities for undergraduate research in the department. Departmental faculty present their current research. Also, an overview of typical tools used in pursuing scientific research projects is provided. Students interested in the chemistry major/minor should ordinarily take this course before the end of their sophomore year. (1 unit)

19. Chemistry for Teachers

This laboratory-based course is designed to teach the fundamental concepts of chemistry and is geared toward students who are interested in becoming elementary or middle school teachers. The course focuses on the following concepts: nature of matter, atomic structure, chemical bonding, and chemical reactions. While learning these core concepts, students will experience what it means to do science by developing their experimentation skills as they participate in a classroom scientific community. Laboratory 3 hours per week. (4 units)

31. Organic Chemistry I

Topics include organic structure and conformations, stereochemistry, structure-reactivity relationships, and the chemistry of alkyl halides and alkenes. Special emphasis is placed on understanding reaction mechanisms. Laboratory 3 hours per week. *Prerequisite: CHEM 13 with a grade of C- or better.* (5 units)

32. Organic Chemistry II

Topics include spectroscopy and the chemistry of alkynes, ethers, alcohols, and carbonyl compounds. Laboratory 3 hours per week. *Prerequisite: CHEM 31 with a grade of C- or better.* (5 units)

33. Organic Chemistry III

Topics include carbonyl condensation reactions, aromatic substitutions, amines, carbohydrates, and peptide and protein synthesis. Other advanced topics may include pericyclic reactions and natural product synthesis. Laboratory 3 hours per week. *Prerequisite: CHEM 32 with a grade of C- or better.* (5 units)

99. Independent Laboratory

Laboratory course, primarily for transfer students to make up lower-division laboratory as needed for equivalency with CHEM 11, 12, 13, 31, 32, and/or 33. *Prerequisite: Approval of department chair.* (1 unit)

UPPER-DIVISION COURSES

Note: No course offered by the Department of Chemistry is subject to challenge, i.e., to fulfillment by a special examination.

101. Bioinorganic Chemistry

Structure, properties, and reactivity of metal complexes and the function of metal ions in biological processes. *Prerequisite: CHEM 32.* (5 units)

102. Inorganic Chemistry

Introduction to inorganic chemistry with emphasis on the nonmetals. Laboratory 3 hours per week. *Prerequisite: CHEM 13.* (5 units)

111. Instrumental Analysis

Principles and use of instrumentation. Focus on electronics, spectroscopic methods, mass spectrometry, and chemical separations. Laboratory 4 hours per week. *Prerequisite: CHEM 13. Co-requisite: CHEM 32.* (5 units)

115. Chemistry Seminar

Active areas of research in university, industrial, and government laboratories, presented by guest speakers. May be repeated for credit. P/NP. (0.5 units)

130. Organic Syntheses

Modern synthetic methods applied to the preparation of structurally complex target compounds, such as bioactive natural products and pharmaceuticals. Extensive discussion of synthetic planning, known as retrosynthetic analysis, emphasizing the standard bond-forming methods learned in CHEM 31–33. Offered in alternate years. *Prerequisite: CHEM 33.* (5 units)

131. Bioorganic Chemistry

Chemical synthesis of carbohydrates, nucleic acids, peptides, proteins, and reaction mechanisms of biological cofactors. Offered in alternate years. *Prerequisite: CHEM 33.* (5 units)

141. Biochemistry I

An introduction to structure/function relationships of biologically important molecules, enzymology, membrane biochemistry, and selected aspects of the intermediary metabolism of carbohydrates. *Co-requisite: CHEM 33.* (5 units)

142. Biochemistry II

Includes a study of various aspects of the intermediary metabolism of carbohydrates, lipids, and amino acids as well as nucleic acid structure and function, protein synthesis and subcellular sorting, and more advanced molecular physiology, including membrane biochemistry, signal transduction, and hormone action. *Prerequisite: CHEM 141.* (5 units)

143. Biochemical Techniques

A laboratory course emphasizing fundamental theory and practice in biochemical laboratory techniques, including preparation and handling of reagents; isolation, purification, and characterization of biomolecules; enzyme kinetics; spectrophotometric assays; and electrophoretic and immunological techniques. Laboratory 8 hours per week. *Prerequisites: CHEM 141 and consent of instructor.* (3 units)

150. Biophysical Chemistry

Introduction to the physical behavior of biomolecules. Topics include transport properties, reaction kinetics, sedimentation, binding dynamics, molecular motion, and electron transfer. *Prerequisites: MATH 13 and CHEM 33 or consent of instructor.* (5 units)

151. Spectroscopy

Fundamentals of quantum mechanics, including wave functions and probability; rotational, vibrational, and electronic transitions; atomic and molecular electronic structure; and magnetic resonance. *Prerequisites: MATH 13 and CHEM 33.* (5 units)

152. Chemical Thermodynamics

Fundamental laws of thermodynamics, and applications to ideal and real gas equations of state, ideal and real solutions, phase equilibria, and electrochemistry. *Prerequisites: MATH 13 and CHEM 33.* (5 units)

154. Physical Chemistry Laboratory

Experimental applications of thermodynamics, kinetics, spectroscopy, and other aspects of physical chemistry. Laboratory 8 hours per week. *Prerequisite: Must be enrolled in or have completed CHEM 151 or CHEM 152.* (3 units)

182. Undergraduate Research

Experimental research project supervised by chemistry faculty. Each unit requires a minimum of 30 hours of laboratory work. May be repeated for credit. *Prerequisite: Consent of instructor.* (1–3 units)

183. Senior Research Experience

Individual research under the supervision of chemistry faculty, culminating in a comprehensive progress report. Laboratory at least 9 hours per week. *Prerequisites: Senior standing in chemistry and consent of instructor.* (3 units)

184. Capstone Research Experience

Continuation of individual research under the supervision of a chemistry faculty mentor, culminating in a thesis and oral presentation. Laboratory at least 9 hours per week. *Prerequisites: CHEM 182 or CHEM 183 and consent of instructor.* (3 units)

190. Special Topics in Chemistry

Special Topics courses may be offered as 2–5 unit courses covering advanced topics in any of the five areas of study in chemistry. These courses may be offered as once-a-week seminars or follow more traditional course schedules. The course units will vary based on the number of course meetings per quarter and the course workload. Possible topics are organic mechanisms, transition metals in organic synthesis, materials, nanotechnology, photochemistry, bioanalytical chemistry, electrochemistry, molecular physiology, and membrane biochemistry. This course may be repeated for credit if the topics vary. (2–5 units)

DEPARTMENT OF CLASSICS

Professors: William S. Greenwalt, John R. Heath *(Department Chair)*
Associate Professors: Scott LaBarge, Michael McCarthy, S.J., Helen E. Moritz
Senior Lecturer: John R. Dunlap

Classics in the broad sense is the study of all aspects of the life and culture of ancient Greece and Rome. The Department of Classics offers courses that explore the most important areas of these ancient civilizations and their Mediterranean context: language (ancient Greek and Latin), literature, history, philosophy, mythology, religion, and art.

Most courses in the department are open to any interested student. Classics courses, such as Mythology, Classical Tragedy, Ancient Greek Religion, and Women in Antiquity, require no knowledge of an ancient language. Latin or Greek may be taken to satisfy the secondary language requirement. Because of the multidisciplinary nature of the field, classics provides an ideal liberal arts curriculum that is an excellent background for careers in many areas.

Majors and minors are available in several programs in the Department of Classics: ancient studies, classical studies, and classical languages and literatures (Latin or Greek). There is a major, but no minor, in Latin and Greek. Because course offerings in any one term are limited, students wishing a classics major are encouraged to plan their curriculum in consultation with a faculty advisor at the earliest possible date.

Students may fulfill their foreign language Core Curriculum requirement by successfully completing a proficiency examination in Latin or Greek at the level required for their program of study. Contact the department chair to make arrangements.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in classics must complete the following departmental requirements for each degree option:

Bachelor of Arts in Ancient Studies

- CLAS 60 (or departmentally approved substitute)
- Cultures and Ideas sequence approved by the department
- Two additional lower-division courses from CLAS 65, 67, 68, 69, 75; various courses in religious studies from an approved list

- Seven upper-division courses from perspectives that include language and literature; philosophy and religious studies; art history, music/theatre and dance; and history and political science; at least one course must be taken in each of three of the four disciplinary perspectives, and three courses must be taken within one of these perspectives): CLAS 141, 175, 181, 182, 184; ENGL 161; CLAS 112, 114, 177; PHIL 131; various courses in religious studies (consult with department chair); ARTH 104, 106, 110; CLAS 181, 182; CLAS 108, 109, 110, 111, 176, 183, 185, 186, 187; POLI 111
- CLAS 198A and CLAS 198B

Bachelor of Arts in Classical Languages and Literatures

Major in Latin or Greek

- Nine upper-division courses in the language of concentration and a capstone project (CLAS 198A and CLAS 198B)

Major in Latin and Greek

- Nine upper-division courses in the ancient languages, with at least six of these in a single language, and a capstone project (CLAS 198A and CLAS 198B)

Bachelor of Arts in Classical Studies

- Five courses in Latin or Greek, which may include the elementary sequence. Students entering with prior study of Latin or Greek may substitute up to two courses in classical literature with advance approval of the department chair.
- CLAS 65
- Cultures and Ideas sequence approved by the department
- One course from: CLAS 60, 67, 68, 69, 75
- One course from: CLAS 141, 175, 181, 182, 184
- One course from the CLAS 120-, 130-, 150-, and 160-series
- Two courses from CLAS 108, 109, 110, 111, 112, 114, 176, 183
- One course from CLAS 177, 178, 185, 186, 187; POLI 111; ARTH 104, 106, 110; PHIL 131
- CLAS 198A and CLAS 198B

REQUIREMENTS FOR THE MINORS

Students must fulfill the following requirements for a minor in each degree option:

Minor in Ancient Studies

- CLAS 60 (or departmentally approved substitute)
- Any two additional approved lower-division courses of the student's choice
- Four approved upper-division courses of the student's choice, with at least two coming from different perspectives, which include language and literature; philosophy and religious studies; art history, music/theatre and dance; and history and political science

Minor in Classical Languages and Literatures

- Completion of 20 upper-division units in either Latin or Greek

Minor in Classical Studies

- Fulfillment of the second language requirement for the Bachelor of Arts in Latin or Greek
- Cultures and Ideas sequence approved by the department
- Two upper-division courses in classical literature, in the original or in translation
- One upper-division course in ancient literature, history, philosophy, or art

LOWER-DIVISION COURSES: LATIN

1. Elementary Latin I

Introduction to vocabulary, forms, and grammar of classical Latin. Development of the reading skills with supporting exercises in writing. No language laboratory. (4 units)

2. Elementary Latin II

Continuation of Latin I. (4 units)

3. Elementary Latin III

Completion of elementary Latin. (4 units)

UPPER-DIVISION COURSES: LATIN

101. Intermediate Latin

A course for students who have finished basic Latin grammar. Students will review Latin forms and syntax while reading prose and poetry of increasing complexity. Students will be prepared to enroll in Latin reading courses covering individual authors and genres. Offered in fall quarter only. (5 units)

121. Caesar

Representative selections from the *Commentarii on the Gallic War* and/or *Bellum Civile.* Consideration of the adaptation of history to political ends. (5 units)

122. Catullus

Lyric poems, short epigrams, and longer mythological poems by the late Republican poet of personal love and sophisticated society. (5 units)

123. Roman Comedy

One or more plays by Plautus or Terence. Origins and nature of Roman comedy. (5 units)

124. Ovid

Selections from the major works, which include love poems, *Amores;* a handbook for amatory success, *Ars Amatoria;* and the epic compendium of mythology, the *Metamorphoses.* (5 units)

125. Cicero: Philosophical Works

Consideration of Cicero's eclectic philosophy through a careful reading of one or more of his philosophical dialogues. (5 units)

126. Cicero: Oratory and Rhetoric

One or more exemplars of Cicero's rhetorical style or rhetorical theory. Consideration of rhetorical form, figures, and topoi. (5 units)

127. Vergil: Aeneid

The epic poem on the effort of founding Rome and the cost of its greatness. Consideration of the traditional and innovative features of Vergil's epic style and purpose. Attention to epic meter. (5 units)

131. Vergil: Eclogues and Georgics

Vergil's earlier works: pastoral poems set in an idealized landscape and the didactic poem on the agriculture and countryside of his native Italy. (5 units)

132. Horace

Selections from the odes and epodes. Attention to the adaptation of Greek lyric forms and rhythms to the Latin language. (5 units)

133. Livy

Selections from the *Ab Urbe Condita*—the history of Rome from its semimythical founding through monarchy, early Republic, and Punic Wars. (5 units)

134. Roman Satire

Representative selections from among the works of Horace, Juvenal, and others. Origins and development of the satiric mode in Latin literature. (5 units)

135. Medieval Latin

Major works of prose and poetry from the fourth century to the Renaissance. St. Augustine's *Confessions;* the histories of Gregory of Tours, Bede, and Einhard; Latin fables; popular songs such as the *Carmina Burana;* and the humanistic writings of Dante and Petrarch. (5 units)

137. Special Topics: Poetry

Occasional courses in selected authors or genres for advanced students. Possible topics: Lucretius or elegy. (5 units)

138. Special Topics: Prose

Occasional courses in selected authors or genres for advanced students. Possible topics: Cicero's letters, Tacitus, or other Roman historians. (5 units)

LOWER-DIVISION COURSES: GREEK

21. Elementary Greek I

Introduction to vocabulary, forms, and grammar of Attic Greek. Development of reading skills with supporting exercises in writing. No language laboratory. (4 units)

22. Elementary Greek II

Continuation of Greek I. (4 units)

23. Elementary Greek III

Completion of Greek grammar. Introduction to reading Greek literature. (4 units)

UPPER-DIVISION COURSES: GREEK

105. Advanced Greek

Selected aspects of Greek grammar in the context of reading excerpts from Greek prose and poetry. *Prerequisite: CLAS 23 or equivalent.* (5 units)

151. Lucian

Selections from the author's satirical treatments of mythology, history, philosophy, and rhetoric and/or from the fantasy called *A True Story.* Lucian's place in the Second Sophistic. (5 units)

152. Homer: Odyssey

Selected passages demonstrating the fusion of the heroic and the romantic in an epic of peacetime. Consideration of epic meter and conventions. (5 units)

153. Euripides

A complete tragic drama. Attention to characterization, dramatic structure, and poetry, and to Euripides' place in the history of tragedy. Metrical reading of dialogue. (5 units)

154. Herodotus

Selections from the Persian Wars. Herodotus' achievements and limitations as the "Father of History." Peculiarities of the Ionic dialect. (5 units)

155. Plato

Careful reading from one or more dialogues such as *Apology, Crito, Phaedo,* and *Republic.* Detailed study of dialogue mode of discourse; overview of Plato's philosophy. (5 units)

156. Greek New Testament

Readings selected from the Koine Greek text of the New Testament with a concentration on the gospels, John, or the epistles. Close reading of the text with a view to theological implications of the vocabulary. Introduction to primary research tools. (5 units)

161. Homer: Iliad

Selected passages illustrating the course and consequences of the wrath of Achilles and the nature of the hero. Consideration of epic meter and conventions. (5 units)

162. Sophocles

A complete tragic drama. Attention to characterization, dramatic structure, and poetry, and to the author's particular contributions to the development of the tragic form. Metrical reading of the text. (5 units)

163. Aeschylus

A complete tragic drama. Attention to characterization, dramatic structure, and poetry, and to the author's particular contributions to the development of the tragic form. Metrical reading of the text. (5 units)

164. Oratory

Selections from a representative Greek orator such as Demosthenes or Lysias. Consideration of classical rhetorical forms and topoi. (5 units)

165. Lyric Poetry

Fragments of Alcaeus, Archilochus, Sappho, Simonides, and others. Development of elegiac, iambic, and melic forms. (5 units)

167. Special Topics: Poetry

Occasional courses in selected authors or genres for advanced students. Possible topics: Hesiod or Pindar. (5 units)

168. Special Topics: Prose

Occasional courses in selected authors or genres for advanced students. Possible topics: Thucydides or Xenophon. (5 units)

LOWER-DIVISION COURSES: CLASSICS

11A. and 12A. Cultures and Ideas I and II

This two-course sequence examines the central themes associated with the construction of Western culture in its global context. Focusing on cultural comparison and contrast, students will explore significant texts, ideas, issues, and events in their historical context from a humanistic perspective. (4 units each quarter)

60. Introduction to Ancient Studies

An exploration of the nature of political and religious authority; that is, the relationship between the individual, the state, and the divine—in three different ancient civilizations. The primary "texts" for this investigation are the representative monuments of each culture: the pyramids of Egypt (particularly the Old Kingdom), the Temple of Solomon in Jerusalem in the united monarchy, and the Parthenon of 5th-century Athens. (4 units)

61. Survey of Classical Literature

Also listed as ENGL 11. For course description see ENGL 11. (4 units)

62. Western Civilization: Ancient

Also listed as HIST 21. For course description see HIST 21. (4 units)

65. Classical Mythology

Principal gods and heroes of Greek and Roman antiquity: their stories, significance, and pictorial representations. Implications of myth in society and possible origins of myth. Important background for European and English literature. (4 units)

67. Ancient Greek Religion

Consideration of the differing attitudes and expectations of polytheisms and monotheisms, and of religious expression in the context of classical Greek cult and ritual. Readings are drawn from a wide variety of literary, historical, philosophical, and epigraphical texts. *Also listed as HIST 16.* (4 units)

68. Ancient Roman Religion

Examination of religious practices, institutions, and beliefs of the ancient Romans. Special consideration of interconnections in Roman religiosity between the acts/beliefs of individuals and the concerns of the state. Concludes with philosophic mysticism, magic, mystery religions, and Christianity. *Also listed as HIST 17.* (4 units)

69. History of Early Christianity

Exploration of how and why the church evolved from a marginal Jewish apocalyptic sect in the tumultuous world of first-century Judaea to become the official religion of the previously pagan Roman Empire. Development of a greater appreciation for the rich tapestry of religious, social, and political events during the Roman Empire that contributed to the rise of Christianity. *Also listed as RSOC 65.* (4 units)

75. Classics in Cinema

A survey of the classical world through selected dramatic films illustrating sequentially the cultural and political history of ancient Greece and Rome. Close viewings of popular films, with comparative reference to sources and practice in the techniques of film criticism. (4 units)

UPPER-DIVISION COURSES: CLASSICS

108. Ancient Greece

A survey of Hellenic history from the Bronze Age to Alexander the Great. Emphasis on the rise and fall of the polis as an independent social, cultural, and political community. *Also listed as HIST 108.* (5 units)

109. The Hellenistic Age

A cultural, social, and political review of Alexander the Great's conquests and their Hellenistic ramifications through the reign of Egypt's Cleopatra VII. *Also listed as HIST 109.* (5 units)

110. Roman Republic

A political, military, social, and cultural review of the rise and fall of the most successful state the West has ever known. *Also listed as HIST 110.* (5 units)

111. Roman Empire

A political, social, and cultural survey of the Roman Empire beginning with Augustus and tracing changes in Rome from the development of the Roman Empire as a world state to the development of Christianity as a world religion. *Also listed as HIST 111.* (5 units)

112. World of Augustine

In his life and writings, St. Augustine marks the point of transition from the ancient to the Medieval world. Augustine's personal odyssey, culminating in his conversion to Christianity, in *The Confessions;* in the *City of God* and excerpts from other treatises, examination of the three principal controversies to which Augustine directed his intellectual energy: the Manichaean, the Donatist, and the Pelagian. Also includes an overview of late antiquity: major figures, key movements, and decisive events amid the dissolution of the Western empire. (5 units)

114. Imperialism and Religion: Roman Britain

Focus on Roman Britain in order to illustrate how imperialistic powers manipulate the religions of the peoples who come under their sway both to foster pacification in newly won territories and to redirect the political loyalties of new subjects. Course compares and contrasts the religious traditions of the Romans and the Celts and notes how religious policy in Britain was not historically unique; cross-cultural comparisons will be made using more modern comparisons and contrasts. *Also listed as HIST 114.* (5 units)

141. Love and Relationships in Classical Antiquity

An examination of the many forms of loving and erotic relationships as they pertained to the Greek and Roman quest for the best human life. Readings in Euripides, Sappho, Ovid, Plato, Aristotle, and many others from genres of poetry, essays, letters, tragedy, and philosophy. (5 units)

146. Age of Socrates

A study of Socrates as both historical and literary figure, with special attention to his political and cultural context, and to our three chief sources on him and his philosophical activities: Aristophanes, Plato, and Xenophon. (5 units)

175. Topics in Classical Literature

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

176. Topics in Ancient History

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

177. Topics in Ancient Philosophy

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

178. Topics in Classical Culture

Occasional courses or seminars in specialized topics. Consult current course descriptions for details. (5 units)

181. Classical Tragedy

Representative works of the principal Greek tragic playwrights: Aeschylus, Sophocles, and Euripides. Features of the tragic genre, its origins, and the conventions of its performance. At the discretion of the instructor, may include satyr drama and/or the Roman tragedy of Seneca. *Also listed as ENGL 110 and THTR 181.* (5 units) NCX

182. Classical Comedy

An exploration of various styles of and approaches to humor in the ancient Greek and Roman world, chiefly as seen through the genres of satyr drama, Greek Old and New comedy, and Roman comedy. At the discretion of the instructor, may include satire, spoof literature, and invective. *Also listed as ENGL 111 and THTR 182.* (5 units) NCX

183. Greek and Roman Historiography

A survey of the origin and development of historical prose from Herodotus through Ammianus Marcellinus. Consideration of history as an artistic genre; special attention to the authors' various political and ideological purposes. (5 units)

184. Classical Mythology in the Western Tradition

An exploration of some of the ways authors from the classical period through the 20th century have manipulated Greek myths for their own poetic and political purposes. Focus is on the legends surrounding the fall of Troy, with particular attention paid to the shifting character of perhaps the two most protean figures in Greek mythology, Odysseus and Helen. Texts include selections from Homer's *Iliad,* Virgil's *Aeneid,* and Dante's *Inferno,* and unexcerpted works by Homer, Sophocles, Euripides, Gorgias and Isocrates, Ovid, Seneca, Dictys and Dares, Shakespeare, Tennyson, Giraudoux, modern Greek poets, and the Coen brothers. *Also listed as ENGL 187.* (5 units)

185. Women in Ancient Greece

Investigation into the representation and the reality of women's lives in ancient Greece, from mythistoric times through the Hellenistic period, from the evidence of literature, history, philosophy, and religions, from legal and documentary texts, and from art. Significance of the status of and views about women in the ancient contexts and for modern times. *Also listed as ENGL 186A.* (5 units)

186. Women in Ancient Rome

Investigation into the representation and the reality of women's lives in ancient Rome, from mythistoric times of the founding of Rome to the advent of Christianity, from the evidence of literature, history, philosophy, and religion, from legal and documentary texts, and from art. Significance of the status of and views about women in the ancient contexts and for modern times. *Also listed as ENGL 186B.* (5 units)

187. Family in Antiquity

A survey of family social, economic, political, and religious roles in various ancient Greek states and in Republican and Imperial Rome. *Also listed as HIST 113.* (5 units)

197A. Senior Thesis I

Identification of a coherent topic, development of a detailed outline, and preparation of an annotated bibliography, conducted under the active direction of a member of the Classics faculty. *Prerequisites: For senior classics majors only; advance permission of instructor and department chair required.* (3 units)

197B. Senior Thesis II

Supervised completion of the final draft, public oral presentation, and defense of the senior thesis. *Prerequisites: CLAS 198A; for senior classics majors only; advance permission of instructor and department chair required.* (3 units)

199. Directed Reading/Research

Individually designed programs of reading or research, in Latin, Greek, or classics (i.e., literature in translation or culture). Available to advanced students. *Advance permission of instructor and department chair required.* (5 units)

COMBINED SCIENCES PROGRAM

Director: Craig M. Stephens *(Biology)*

The College of Arts and Sciences offers a Bachelor of Science in Combined Sciences for students who have an interdisciplinary interest in the sciences. This degree provides breadth of basic natural science training along with meaningful exposure to analytical frameworks used in the social sciences. The combined sciences major nourishes intellectual flexibility, fosters awareness of the multiplicity of forces that shape our world, and encourages students to think about interconnections among processes other disciplines may examine in isolation.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in combined sciences must complete the following requirements:

- MATH 11, 12
- BIOL 21, 22, 24
- BIOL 23 or 25
- CHEM 11, 12, 13, 31, 32
- PHYS 11, 12, 13 or PHYS 31, 32, 33
- ENVS 2 or 11 or 12 or CHEM 1
- POLI 1 or SOCI 1
- ANTH 3 or POLI 2
- PSYC 1 or PSYC 2 or PSYC 150 or SOCI 127
- BIOL 187 or ANTH 172 or PSYCH 196 or SOCI 138 or ECON 101
- SOCI 148, 149, 165 or 172
- Five other approved upper-division natural or social science courses; at least two of these must be selected from the natural sciences (biology, chemistry, or physics)

PREPARATION IN COMBINED SCIENCES FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach science in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. The secondary teaching credential requires the completion of an approved credential program that can be completed as a fifth year of study and student teaching, or internship. Students who are contemplating secondary school teaching in science should consult with the coordinator in the Department of Chemistry as early as possible.

DEPARTMENT OF COMMUNICATION

Professors: Don C. Dodson, Sally Lehrman *(Knight Ridder/Mercury News Professor),* Emile G. McAnany, Paul A. Soukup, S.J. *(Department Chair)*
Associate Professors: Christine M. Bachen, Laura Ellingson, Stephen C. Lee, Yahia Mahamdi, Charles H. Raphael, Sunwolf
Assistant Professors: Hsin-I Cheng, Rohit Chopra, Michael Whalen
Senior Lecturer: Barbara Kelley
Renewable Term Lecturer: Gordon Young

The Department of Communication offers a program of studies leading to a Bachelor of Arts in Communication. The major prepares students for various graduate and professional studies and for careers in the communication industry. An academic minor also is available. Communication majors focus on the communication process in interpersonal, mass media, and computer-based contexts. They explore the theory, research methodologies, responsibilities, institutional structures, and effects of mass and interpersonal communication. The department gives special consideration to new and developing communication technologies.

The major also integrates theory with practice. It allows students to apply their knowledge of the communication process to the study and creation of communication products (speeches, television programs, newspaper stories, Web sites, etc.). Particular attention is given to developing students' concerns for ethics and the common good.

Because the communication field requires students to have a broad liberal arts education, students work closely with a department faculty advisor to plan a cohesive academic program that combines courses in the Department of Communication with courses in other departments. Often students complete a minor or take a number of courses in related disciplines, such as marketing, theatre arts, psychology, or political science.

The communication curriculum provides nonmajors with the opportunity to acquire a critical understanding of the communication process and contemporary media, to improve oral and written skills, and to heighten visual awareness.

All students are encouraged to participate in one of the student-run campus media. Special credit practica for such work may be included in the student's academic program. All junior and senior students are encouraged to complete an internship at an off-campus media organization or other communication-related institution. The department maintains a list of potential internships that may be completed for credit as COMM 198.

The Department of Communication will accept no more than two study abroad courses (lower-division, upper-division, or a combination) toward completion of the communication course requirements. Courses taken abroad will be accepted on a case-by-case basis as completing specific communication lower-division requirements. Upper-division courses taken abroad will be accepted only as communication upper-division elective credit. Courses taken abroad will not be accepted as completing the required List A, List B, research methods, or thesis/capstone requirements. Whenever possible the chair of the department will determine equivalency credit based upon the course description in the literature from the foreign university. Study abroad programs run by Santa Clara may fulfill some communication requirements subject to approval by the chair of the department.

One of the oldest forensic programs in continuous operation on the West Coast, Santa Clara Debate provides a challenging and rigorous co-curricular activity designed to develop public speaking skills, critical thinking, and public policy analysis. The program is open to all majors and years regardless of previous speech or debate experience. The schedule offers national level competition in both policy team debate and in parliamentary team debate along with numerous on-campus activities related to competitive speech, including hosting high school invitationals. Students may receive academic credit, and policy debate participants are eligible to apply for merit scholarships.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in communication must complete the following departmental requirements:

- COMM 1
- COMM 2
- COMM 12
- COMM 20
- COMM 30 or COMM 31
- COMM 40
- Two upper-division communication theory courses (signified by the letter "A" in the course number)
- One upper-division communication applied course (signified by the letter "B" in the course number)
- Two additional approved elective upper-division communication courses
- COMM 110
- COMM 111
- COMM 112 or COMM 113–116

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in communication:

- COMM 1 or COMM 2
- Two approved upper-division communication courses
- Three additional approved communication courses (any combination of upper division or lower division)

LOWER-DIVISION COURSES

1. Introduction to Interpersonal Communication

An overview of the communication process, issues, and theories explaining behaviors in human relationships, with an emphasis on linking our perceptions, thoughts, and feelings to those of our communication partners. Topics typically include the power of language, nonverbal communication, deception, persuasive communication, gender differences in communication, small group communication, and intercultural communication. Arrupe Center participation required. (4 units)

2. Introduction to Mass Communication

An examination of mass communication and society, focusing on media industries, the production of content, and audiences. Considers different types of media; theoretical perspectives related to the role of media in society; and ethical and regulatory issues pertaining to media practice. (4 units)

12. Technology and Communication

Examination of the relationship between communication technology and society, in the past, present, and future. Hands-on introduction to the basic functions of the computer and Internet as tools for research and communication. (4 units)

20. Public Speaking

This course is designed to provide students with basic theories and skills that are essential to effective public speaking. Topics include audience analysis, organization, persuasion, credibility, and delivery. Ideally, students should be able to apply these skills in a variety of public speaking situations, whether in future college courses or in nonacademic settings. Each student will also learn to analyze, criticize, and evaluate the speaking of others. (4 units)

30. Visual Communication

An introduction to the basic grammar and principles of visual communication, integrating theory and practice. The theory part provides students with the tools needed to understand visual language and the role of image-based media in contemporary culture. The application part introduces students to the principles and processes of media production using still photography, video cameras and computer editing. In addition to attendance at class, all students are required to attend production labs. Concurrent enrollment in lab required. Preference given to declared communication majors and minors. (4 units)

31. Video Production 1

An introduction to the basics of video production in both field and studio environments. Through a combination of lectures, labs, field exercises, and basic studio operations, students will learn the techniques, concepts, and processes involved in single camera and studio television production. In addition to attendance at class, all students are required to attend production labs. *Concurrent enrollment in lab required.* (5 units)

40. Introduction to Journalism

Introduction to the theory and practice of journalism, including field work in news gathering, interviewing and writing techniques as well as study of news values, ethics and objectivity. Primary emphasis on writing for newspapers. Includes weekly lab. (4 units)

UPPER-DIVISION COURSES

Note: Theory courses are designated with the letter A and application courses with the letter B.

100A. Advanced Interpersonal Communication

Analysis of theories and research on the practice of communication in social and intimate relationships. Special topics will be offered, which may include: families, romantic relationships, miscommunication, nonverbal communication, or symbolic relational communication, to name a few. Course is designed to allow students to increase understanding of the processes of interpersonal communication, become familiar with a variety of theoretical approaches to specific relationships, as well as offer specific skills and strategies for building more satisfying relationships. Check topic offered for specific description. May be repeated for different topics. *Prerequisite: COMM 1.* (5 units)

101A. Vocation and Gender: Seeking Meaning in Work and Life

An interdisciplinary examination of vocation, understood as both a meaningful career and life outside of work. Incorporates theoretical and empirical methods of the disciplines of communication and economics to provide a rich set of tools with which to make discerning decisions on personal vocation. Economic models and empirical studies provide the framework for considering life choices while the field of communication enables analysis of the ways individuals and groups engage in interpersonal, organizational, and mediated communication surrounding work/life issues. Co-taught with professors from both communication and economics. (5 units)

101B. Interviewing

Fundamental principles and techniques of interpersonal interviewing. Collecting narratives from people about their experiences and ways they make sense of events in their relationships with other people. Advanced principles of gathering scholarly data through face-to-face interviews, using a variety of interviewing formats and tools. Supervised field work, developing interview protocols, interviewing real world populations, recording and collecting responses, and organizing data. Emphasis on compassionate listening skills. Topics will vary. *Prerequisite: COMM 111.* (5 units)

102A. Persuasion

Analysis and synthesis of current persuasion theory and research to understand how messages influence attitudes and behaviors. How are persuasive messages crafted and what impact do they have? Specific domains of persuasive communication will typically include: theories for altering attitudes and behaviors, the persuasion process, the use of persuasion in applied contexts (advertising, public relations, personal relationships, courtrooms, health care settings). *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

103A. Communication and Conflict

A review of theories, perspectives, and research on communication and conflict in various contexts (families, friendships, romances, business relationships). Specific topics will include getting what you want, saving face, realigning power imbalances, miscommunication, styles and tactics, negotiation, third-party interventions, and transforming conflicts. Development of communication skills for managing conflict productively in interpersonal, organizational, and intercultural contexts. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

104A. Group Communication

Theories and research about the communication dynamics in a variety of relational groups. Topics include childhood groups, gaining entry to groups, being excluded from groups, group hate, social loafing, leadership styles, facilitating groups, task versus social goals, communication roles of members, effects of gender and diversity, moral values of members, and the resolution of group conflicts. Specific groups will include social peer groups, cliques, juries, gangs, small work groups, super-task groups, problem-solving groups, teams, and decision-making groups (including juries). In addition to theory, practical skills for handling group challenges and member conflict will be offered. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

105B. Oral Storytelling

The art of telling stories offers a powerful connection between people: as entertainment, teaching, and persuasion. In this course, the emphasis will be on the creative process and performance of oral stories: ghostly tales, urban legends, fairy tales, folktales, trickster tales, and wisdom stories. Each student will be involved in learning/telling/finding powerful ancient multicultural tales. We will expand the classroom to the community, performing in a variety of settings, as we learn how a single story is always interpreted differently by each teller and each listener. Students will learn to develop a personal creative voice and style, to deeply appreciate listening to the tales of others, to appreciate folktales as rich multicultural bridges, and learn tale-telling skills that can be applied to enrich the lives of other people. (5 units)

107A. Intercultural Communication

An analysis and comparison of communication styles and forms within and among cultural groups in the United States. Particular attention given to the communicative behavior of co-cultures such as Blacks, Asians, Chicanos, Gays, Women, the Aging and Disabled. An examination of differences in communicative forms, content, and defensive behavior. The significance of such differences in style/behavior as the result of increasing contacts between cultures/co-cultures. Fulfills the ethnic studies requirement. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

108A. Communication and Gender

Explores gendered patterns of socialization, interaction, and language. The course goes beyond stereotyping female and male modes of communicating to consider ways in which masculinity, femininity, ethnicity, class, age, sexuality, and disability intersect in interpersonal, family, organizational, and public communication, as well as in feminist and men's movements. *Prerequisite: COMM 1 or consent of instructor.* (5 units)

109A. Friendships and Romances

This seminar-style course will examine theories, concepts, and research that explain the relational dynamics in our friendships and romances. Using a communication focus and examining published studies and theories, topics will include childhood and adult friendships, cliques, toxic friends, women and men as platonic friends, flirting, dating, courting, maintaining intimacy, emotional communication, the bio-neurology of love, rejection, and relational endings (losing, leaving, and letting go). (Counts as a University Honors Program course, but enrollment is not limited to Honors program students.) *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

110. Quantitative Research Methods

Introduction to the social scientific study of communication. Students will learn about research design and specific methods for analyzing interpersonal communication behavior and media content and behavior,

such as surveys, experiments, and content analysis. Students learn about and apply data analysis and statistics. *Prerequisites: COMM 1 and COMM 2.* (5 units)

111. Qualitative Research Methods

Provides students with an understanding of qualitative methods used in communication research on messages, contexts, and impacts. Explores qualitative methods such as audience ethnography, participant observation, focus groups, textual analysis, in-depth interviewing and institutional analysis. Students do exercises on design and application of qualitative methods and analyze the data gathered. *Prerequisites: COMM 1 and COMM 2.* (5 units)

120A. Environmental Communication

This course introduces students to tools for analyzing and engaging in public discourse about the environment. Students draw on communication theory and research to understand rhetorical strategies used in contemporary environmental debates and participate in those debates. Special attention is given to how mass media news and entertainment can represent environmental issues responsibly. Counts for the environmental studies major and minor. (5 units)

121A. Minorities and the Media

The theory and practice of minority media production, representation, and use. Examination of the classification of a group as a minority, how different groups historically have been marginalized in public representation and how these images have been, and are being, challenged. Course requirements include research into specific public images, fieldwork, and a final class presentation. Fulfills the ethnic studies requirement. (5 units)

123A. Media and Youth

This course considers the youth media culture that has become a pivotal part of the experience of childhood and adolescence. Students examine the content of popular media aimed at young people and the media industries that produce this content. Also explored are patterns of media usage throughout childhood and adolescence, the ways that media are integrated into family life, and how educational and entertainment media content shapes children's knowledge, attitudes, behaviors, and identities. Topics include educational media effects, media violence, gender and racial/ethnic stereotyping, advertising effects, and media literacy efforts. *Prerequisite: COMM 2 or permission of instructor.* (5 units)

124B. Information Campaigns

Examines the principles of design, implementation, and evaluation of information campaigns created to produce social change in such areas as health, the environment, or civic education. Emphasized are problem analysis, audience analysis, message design, and evaluation. Students examine actual campaigns (e.g., anti-smoking efforts, teen pregnancy or drug campaigns) and design their own campaigns focusing on a relevant social problem. *Prerequisite: COMM 2 or permission of instructor.* (5 units)

125A. Media Audience Studies

The audience plays a critical role in our understanding of mass communication. How do media scholars and practitioners conceptualize and study media audiences? How do individuals and groups use media, interpret media messages, and integrate media experiences into their lives? The course will address these questions, looking at a variety of media and media content (e.g., news and entertainment content of books, film, TV, Internet) and do so with different characteristics of audiences in mind. We shall see, for example, how audience responses are shaped by factors such as ethnicity, gender, age, or by the context in which the medium and its message is experienced. *Prerequisite: COMM 2 or permission of instructor.* (5 units)

126A. Critical Media Theory

A survey course to introduce major theoretical approaches used to study media. The goal is to provide students with the philosophical and historical background and theoretical concepts needed to analyze the institutions, forms, and content of the media from a critical perspective. *Prerequisite: COMM 2.* (5 units)

130B. Screenwriting

Creation of proposals, drafts, and final scripts for dramatic fictional narratives. Analysis of published short screen plays, and how the translation of these scripts to the screen affects the story. Fulfills the third writing requirement. *Prerequisites: ENGL 1 and ENGL 2.* (5 units)

131B. Intermediate Dramatic Production

Principles and techniques of dramatic, film style television production. The role of the auteur is explored along with advanced television aesthetics and narrative design, working with performers, and directing formats. Advanced camera operation/videography, editing and digital video effects are also explored. All students are required to attend a production lab. *Prerequisite: COMM 30 or COMM 31.* (5 units)

132B. Intermediate Documentary Production

Explores the technical, aesthetic, and ethical issues surrounding documentary production. The documentary form is examined as a cultural and historical artifact, as a site where traditional expectations about journalism and personal expression collide. While emphasis is placed upon single camera, film-style documentary production, other documentary styles are also examined. Clearances, copyright and other fundamental production issues are explored. Students produce a short documentary for the course. All students are required to attend a production lab and outside film/video screenings. *Prerequisite: COMM 30 or COMM 31.* (5 units)

134B. Intermediate Studio Production

Multiple camera, studio-based video production. Dramatic production, music, and other studio-based program styles are examined. Students produce 20-30 minute productions for the course. Digital video effects, still store, character generator, and advanced audio elements are explored. All students are required to attend a production lab and outside film/video screenings. Preference given to communication majors and minors. May be repeated as topics vary. *Prerequisite: COMM 31.* (5 units)

136A. Film/Video Narrative Strategies

Why do movies and television shows look and sound the way they do? Why do we tell stories in these media in these ways? This course examines the historical roots and broad cultural implications of telling stories with moving pictures. Film/television theory and criticism is used as a means of examining our assumptions and preconceived notions about visual narrative styles. All students are required to attend outside film/video screenings. *Prerequisite: COMM 2.* (5 units)

137A. Film/TV History

Explores the development of the film and television industries, styles, and audiences. The impact of the forms is examined in the context of political, economic, and cultural changes of the past century. May be repeated as topics vary. All students are required to attend outside film/video screenings. *Prerequisite: COMM 2.* (5 units)

138A. Popular Culture Studies

Examines a broad array of historical and emerging popular culture forms. Drawing on communication, anthropology, and historical approaches to cultural production, the course examines the implications and

effects of popular culture forms such as comic books, video games, and interactive media. May be repeated as topics vary. All students are required to attend outside film/video screenings. *Prerequisite: COMM 2.* (5 units)

139A. Comparative Analysis of Film Systems

This course investigates the ways in which films and television programs are conceived and produced within particular national film and television industries. The course examines how the worldwide ascendancy of Hollywood styles of filmmaking and dominance of the global distribution of films has compelled many filmmakers to adopt new filmmaking strategies meant to counter American mainstream cinema. In comparing Hollywood to other world film traditions, the course addresses the different conceptions of film, which is perceived primarily as a commodity by Hollywood producers and more as a cultural artifact whose role is crucial in shaping national cultures by the rest of the world. *Prerequisite: COMM 2.* (5 units)

141B. Advanced Journalism

Advanced news reporting and writing. Emphasis on strategies for public affairs reporting, beat coverage, media ethics, and source development. Includes weekly beat assignments, an enterprise feature, and an immersion journalism project. Arrupe Partnerships participation required. *Prerequisite: COMM 40.* (5 units)

142B. Online Journalism

This course is an introduction to the fundamentals of online journalism. Students will plan, report, write, and produce news, arts, sports, and feature segments for online publication. Primary emphasis on improving journalistic skills, as well as basic training in digital audio recording, editing and production; podcasting; and various online formats. *Prerequisite: COMM 40.* (5 units)

143B. Special Topics in Journalism

Sports, features, lifestyle, science, editorial writing, etc. Course focus shifts as instructor and topics change each quarter. Students may repeat course for credit. *Prerequisite: COMM 40.* (5 units)

144B. Television Journalism

Students research, write, shoot, edit, and report radio and television news. Students produce news packages and larger news programs. At times the course mimics a news day, from production planning to the actual newscast. At other times the course replicates the television magazine model of production. All students are required to attend a weekly production lab. *Prerequisites: COMM 31 and COMM 40.* (5 units)

146B. Magazine Journalism

Includes story development, market analysis, investigative reporting techniques, query efforts and sophisticated writing approaches for magazines, culminating in a long-form journalism project. Includes readings in narrative and literary journalism. *Prerequisite: COMM 40.* (5 units)

147A. The News Media

Introduction to mass media news in the U.S. Analysis of forces that shape journalism today and how to identify their influence. Theories of journalism's role in the democratic process. Ethical dilemmas posed by contemporary news. *Prerequisite: COMM 40 or permission of instructor.* (5 units)

148B. Multicultural Journalism

This course involves learning about and interacting with multicultural audiences, the subjects of interest to them, the sources who animate the stories about those subjects, and the products of those stories. Emphasis will be on journalistic reporting and writing, media critique, and oral history. *Prerequisite: COMM 40.* (5 units)

149A. Political News

Focused primarily on analysis of ongoing campaign coverage, the course will also examine historical and comparative aspects of politics in the media. Regular consumption of media coverage of politics required. (5 units)

149B. How to Report on Topics from Sustaining Our Earth to Sustaining Ourselves

If you are curious about the world and how things work, science writing can put you in the middle of the action. Learn how to identify science and health news, report on the important participants and research, and show audiences why science should matter to them. This course welcomes both humanities and science majors to explore news developments and their underlying research, as well as identify the social, ethical, and legal issues raised by science. Students will analyze other work and write their own. *Prerequisites: English 1 and 2.* (5 units)

150B. Public Relations and Corporate Communication

The Internet and technology have changed public relations and how companies and organizations communicate, collaborate, interact, and influence outcomes with stakeholders and targeted publics. This course explores the theories and practices of public relations today, including program planning, development, execution, and measurement of media relations, traditional PR tactics, and new, online channels and tools. Writing, business planning, effective presentation, critical thinking, integrated marketing communications, fundamentals of business, business ethics, and business practices are emphasized. Guest lecturers from corporate America and business practice exercises provide real-world experience in applying theories and concepts. *Prerequisites: COMM 2 and COMM 40.* (5 units)

151A. Organizational Communication

Examines the major communication and organizational theories that form a foundation for the study of organizational communication. Considers organizations as active systems, and will focus on the role and effect of communication in organizational functions, culture, structure, and characteristics. We will consider carefully the role of communication professionals in organizations. *Prerequisite: COMM 1 or COMM 2.* (5 units)

156A. Health Communication

This course explores how health and illness are experienced and communicated by individuals, organizations, and the media. We will examine the history of the U. S. medical establishment, the intersections of race, class, gender, age, and sexuality with communication in health care organizations, the cultural specificity of health beliefs, and the ways in which media messages influence perceptions of health and risk. *Prerequisite: Any one of the following: COMM 1, PSYC 1, PSYC 2, or SOCI 1.* (5 units)

160A. Silicon Valley Communication Technologies

History and theory of computer and digital technologies. Silicon Valley as a case study of the growth and social impact of the Information Age. Emphasis on the changing role of institutions (universities, government, corporations) that shape the development of communication technology. Attention to the Information Age's impact on the environment, workplace, and home. *Prerequisite: Core technology class.* (5 units)

161B. Communication Media and Technology in Education

In North America, we tend to associate communication media with entertainment or business. This course explores alternative uses of communication, particularly as applied to education. Examines theory and practice in distance education (radio

schools, satellite service), instructional television (ITFS in local schools), and interactive video computer-assisted education. Examination of current implementations of the technologies. Class project will consist of designing and implementing (as far as possible) some educational use of communication (for example, an instructional show or a Web application). *Prerequisite: Core technology class.* (5 units)

162A. Communication Technology and Policy

Current issues and debates over technology policy in the United States. Special attention to how new communication technologies raise issues of privacy, access, political and cultural diversity, and democratic participation. Evaluation of policy options, drawing on communication research and ethical reasoning. Examines regulation of video, voice and data delivery through telephone, cable, wireless, broadcasting and Internet. Concludes with a student policy conference. *Prerequisite: COMM 2.* (5 units)

163A. Internet Communities and Communication

Examines cyberspace as home to many types of collectives, from groups on social network sites to employees of corporations, religious groups to online fan sites, cyberactivists to citizens of as-yet-unborn nations. Premised on the understanding that communication and community have been fundamentally linked in history, examines communication practices in a range of Internet communities, with focus on (a) the shaping of ethnic, religious, and national identities online; (b) the dynamics of transnational communities; and (c) logics of technological and communication networks on the World Wide Web and Internet. Addresses the philosophical implications of communication practices among Internet communities for notions of identity. *Prerequisite: COMM 2.* (5 units)

164A. Race, Gender, and Politics in the Media

How do race and gender play out on the political stage? What is the news media's role in shaping our perceptions? This course studies news coverage and its influence on political discourse and our ideas about one another. *Prerequisite: COMM 40.* (5 units)

165B. Edit and Design for Journalism and New Media

Fundamentals of copy editing and designing print presentation formats. Emphasis on concise, logical, explanatory, and attention-getting presentation of words, graphics, and photographs. *Prerequisites: COMM 12 and COMM 40.* (5 units)

169A. Special Topics in Communication Technology

This course focuses on the intersection of communication theory/research and issues of technology. May be repeated for credit as topic varies. *Prerequisite: Permission of instructor.* (5 units)

170A. Communication Law and Responsibility

An introduction to mass media law covering First Amendment protections for journalists and other communicators, as well as areas of law such as defamation, privacy, copyright, and harm to the public. Students gain experience in applying the law by preparing and delivering legal arguments. (5 units)

172A. Communication Ethics

This course will explore the application of ethical standards and virtues to real-world challenges facing communicators in interpersonal, organizational, and new media settings; theories and models of moral development and ethical communication leadership; development of moral sensitivity, judgment, commitment, and courage to be "at our best" in communication settings.

Exploration of moral imagination, reflection styles, and ethical community/cultures by engaging students in the process of "doing ethics" and critical reflection in a community setting. Development of skills in perspective-taking, values/virtues identification, and applied ethical decision-making. Case construction and other research methodologies to explore practical ways to build character, develop virtues, and remove stumbling blocks to ethical action. *Prerequisite: Completion of University Core ethics course.* (5 units)

175A. Communication and Theology

Do the practices of communication have any consequences for theology? We know that St. Paul claims that "faith comes from hearing" and that Christian theology has taken communicative expression seriously throughout the centuries. This course examines how theology has used communication, how it has evaluated communication, how communication contributes to theology, and how new communication technologies have a contemporary impact on theological and religious practices. Examines a variety of communication expressions (art, music, poetry, television programs, films, Web sites) as religious expressions; students will create their own theological expression using some contemporary medium. (5 units)

180A. Global Audiences

Explores how the globalization of TV and Internet news and entertainment and film have impacted audiences in different cultures. Examines the available research and theory on audience exposure and impact from a cultural, value and social perspective and how cultural and political movements and /or government policy grow in reaction to invasion of a culture's symbolic space by global media messages. *Prerequisite: COMM 2.* (5 units)

181A. Global Media Industries

Examination of how media industries have been transformed into global businesses and how technologies of distribution by cable, satellites, and the Internet have brought almost all people into a global symbolic space; theories of political economy and audience reception are applied. Exploration of how groups and governments have responded to the phenomenon and what they do to protect their cultural and political sovereignty. *Prerequisite: COMM 2.* (5 units)

182A. Global News Issues

Explores the changes that have taken place in news coverage on a global basis in the last decade, especially television and Internet news; how government policies of control of information have changed in reaction to new technologies of information distribution; and how internal politics may be affected by international media attention. *Prerequisite: COMM 2.* (5 units)

183A. Communication, Development, and Social Change

How does communication content and technology solve problems of global poverty and social change? This course addresses the theories, policies and practices that help explain the success or failure of new communication technologies in helping the disenfranchised achieve a better life for themselves. Hands-on work with real cases will give students a chance to think through the complicated process of social change. *Prerequisite: COMM 2.* (5 units)

184A. Postcolonial Identity and Communication

Paying careful attention to the meaning of the term 'postcolonial' in different historical and geographical contexts, undertakes a critical analysis of media representations of national and cultural identity in postcolonial societies in Africa, Latin America, and Asia. Evaluates the ways in which media constructions of national identity intersect

with understandings of gender, race, religion, and ethnicity. A key focus area of the course is the experience of diasporic postcolonial communities as represented in media. *Prerequisite: COMM 2.* (5 units)

190. Senior Seminars

(5 units)

192. Journalism Practicum and Online Journalism

Journalism Practicum: This 1-unit course is for writers and editors of *The Santa Clara.* Students review the student newspaper and offer practical advice and experience in journalism. *Santa Clara* staff members assist in teaching skills of news, sports, and feature writing and reporting, and techniques of design and production. Requirements: Class members meet once a week and are expected to spend at least three hours a week in newspaper work. (1 unit)

Online Journalism: This is a course designed to get students involved with journalism via digital media. In the practicum, students report, write, edit, broadcast, and promote news, arts, and entertainment content. Work can air on KSCU 103.3 FM, *The Santa Clara* student newspaper Web site, or the practicum blog. Students will also learn the basics of digital recording and receive a basic introduction to studio production and new media. (1 unit)

193. Yearbook Practicum

A 1-unit course for editors and principal staff members of the University's yearbook, *The Redwood.* Principles of photojournalism, magazine graphic design, and book production. *Redwood* staff members assist in teaching skills of reporting, writing, production, and design. Class members meet once a week and are expected to spend at least three hours a week in yearbook work. (1 unit)

194. Forensics Practicum

Supervised activity in forensics. Includes competition in debate and various speaking events: persuasive, expository, extemporaneous, impromptu speaking, and oral interpretation. Field trips required. (1 unit)

195. Photojournalism Practicum

A practicum for photo staff of *The Santa Clara* (newspaper) and *The Redwood* (yearbook). Shooting, processing, and printing regular assignments for student publications. Advisors are working photojournalists with diverse backgrounds. The class meets one hour a week to discuss photo techniques and review students' work. The course features regular guest speakers from Bay Area newspapers. Basic knowledge of photography and darkroom techniques required. This course may be repeated for credit. (1 unit)

196. Senior Capstone

Senior Capstone in Video

Students enrolled in video capstone work in small production teams to produce 20- to 30- minute video projects. The type or style of these projects (dramatic, documentary, or studio-based productions) is determined by which intermediate video production courses the team members have taken. Heavy emphasis on preproduction planning, script development, audience assessment, division of labor, budgets, and building a collaborative vision for the project. Students also write an extended essay that integrates their production practices with film/video theory. Weekly laboratory. *Prerequisites: COMM 1, COMM 2, COMM 12, COMM 20, COMM 31, COMM 40, one A-list course related to journalism or media criticism, COMM 141, and at least two of the following B-list courses: COMM 142 or 144, 143, 146, 148.* (5 units)

Senior Capstone in Journalism
The goal of the journalism capstone project is to produce a 3500-word magazine piece of publishable quality on a significant community issue. (Students may choose to produce their finished piece in video or radio format, by permission of instructor.) Students will submit a written story proposal, including a preliminary list of sources and projected reporting strategy, perform a comprehensive literature search, and thoroughly research the story via interviews, archival research, and first-hand observation. Students will be required to edit their peers' work throughout the quarter as well as submit multiple drafts of the final project. *Prerequisites: COMM 1, COMM 2, COMM 12, COMM 20, COMM 31, COMM 40, one A-list course related to journalism or media criticism, COMM 141, and at least two of the following journalism B-list courses: COMM 142 or 144, 143, 146, 148.* (5 units)

Senior Capstone in Public Relations
This capstone focuses on the application of communication and business theories to the practical aspects of business, corporate communications, and public relations, including the planning/execution process and the roles of the various functions that compose public relations within a corporate or business entity. Topics include integrated marketing communications, branding, marketing mainstream media, and citizens' journalism. *Prerequisites: All lower-division courses required for communication majors plus COMM 110, COMM 111, one upper-division communication theory (List A) course and COMM 150B.* (5 units)

197. Senior Thesis

Senior thesis serves as a culminating experience for the communication major, bringing together the student's previous coursework in communication theory, research methods, and applied communication. The course is offered in several forms to better meet the needs and interests of the students and faculty. Some sections concentrate on students designing and conducting original research, while other sections operate as advanced seminars on a particular topic or concentrate on community-based learning experiences. Applied capstone experiences in video (COMM 113), journalism (COMM 114), and public relations (COMM 116) are options for students who qualify. *Prerequisites: COMM 1, COMM 2, COMM 12, COMM 20, COMM 30 or COMM 31, and COMM 40. Particular capstone sections may also require additional, specific upper-division communication courses in research methods and communication theory.* (5 units)

198. Internship

Students work an average of 10-20 hours per week at an approved communication-related internship site outside the University. Students must be available to meet as a group once a week to discuss and analyze their internship. Students write several papers and complete a minimum number of hours based on units awarded. Course may be taken twice for credit, but only once to satisfy a communication upper-division elective requirement. *Prerequisite: Consent of instructor one week prior to start of the quarter.* (1–5 units)

199. Independent Study

Students arrange to work with a faculty member for a directed reading in communication theory, research, ethics, etc. Creative projects may also be arranged in television, print, or another applied area. Written proposal, course meeting schedule, and readings must be approved by instructor and chair prior to registration. Written proposal must be approved by instructor and chair one week prior to registration. (1–5 units)

DEPARTMENT OF ECONOMICS

Professors: Mario L. Belotti *(W. M. Keck Foundation Professor),* William F. Donnelly, S.J., Alexander J. Field *(Michel and Mary Orradre Professor),* John M. Heineke, William A. Sundstrom, Thaddeus J. Whalen Jr.
Associate Professors: Henry Demmert, Carolyn L. Evans, Linda Kamas, Michael Kevane *(Department Chair),* Kris J. Mitchener *(Robert and Susan Finocchio Professor),* Helen Popper, Dongsoo Shin
Assistant Professor: Homa Zarghamee

As one of the social sciences, economics studies how the choices we make as individuals—as consumers and producers, as savers and investors, as managers and employees, as citizens and voters—combine to determine how society uses its scarce resources to produce and distribute goods and services. This practical, useful discipline provides insights into important issues such as the determinants of wealth and poverty; unemployment, inflation, international trade, and economic growth; and success and failure in the marketplace. The rigorous, systematic analysis that the study of economics brings to bear on these and other real-world issues provides excellent preparation for careers in both the private and the public sectors, as well as for graduate study in economics, business, public policy, and law. Economics graduates pursue varied careers in business, law, banking and finance, government service, education, and private consulting. Students considering graduate study in economics leading to a master's or doctoral degree are strongly encouraged to meet with their advisor as early as possible to plan an appropriate course of study.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in economics must complete the following departmental requirements:

- ECON 1 or 1E, 2, and 3
- MATH 11 and 12, or MATH 30 and 31
- OMIS 40 and 41, or MATH 122 and 123
- ECON 113, 114, 115, and 181 or 182
- Five upper-division economics electives, at least two of which must be completed after ECON 113 and 115

REQUIREMENTS FOR THE MINOR

Students with a minor in economics through the College of Arts and Sciences must complete the following requirements:

- ECON 1, 2, 3, 113, 115
- Two additional upper-division economics courses
- MATH 11 or 30

LOWER-DIVISION COURSES

1. Principles of Microeconomics

Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

1E. Principles of Microeconomics

Special section of ECON 1 emphasizing environmental applications of economics. Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

2. Principles of Macroeconomics

Determinants of national income and product in the long run and short run; inflation, unemployment, and business cycles; monetary and fiscal policies; and economic growth. *Prerequisite: ECON 1.* (4 units)

3. International Economics, Development, and Growth

Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. *Prerequisite: ECON 2.* (4 units)

3H. International Economics, Development, and Growth

Honors section. Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. Must be in the University Honors or Leavey Scholars Program, or have permission of instructor. *Prerequisite: ECON 2.* (4 units)

UPPER-DIVISION COURSES

Prerequisites: Unless otherwise noted, ECON 1, 2, and 3 are required for all upper-division economics courses.

101. Resources, Food, and the Environment

Exploration of relationship among food production, resource use, and the environment. Topics include biotechnology, the green revolution, resource depletion, environmental degradation, and food safety. *Prerequisites: None.* (5 units)

111. Economics of the Environment

Economic analysis of environmental issues and government policies for environmental protection. Applications to important environmental issues, such as global climate change, water and air pollution, hazardous wastes, biodiversity, and endangered species. *Prerequisite: ECON 1.* (5 units)

113. Intermediate Microeconomics I

Theory of rational individual choice and its applications to decision making, consumer demand, and social welfare; theory of the firm; production and costs. *Additional prerequisite: Math 11 or 30.* (5 units)

114. Intermediate Microeconomics II

Determination of price and quantity by profit-maximizing firms under different market structures; strategic behavior; general equilibrium; market failure and government policies. *Additional prerequisite: ECON 113.* (5 units)

115. Aggregate Economic Theory

Macroeconomic analysis, emphasizing modern macroeconomic models for explaining output, employment, and inflation in the short run and long run. Macroeconomic policymaking, including fiscal and monetary policy. *Additional prerequisite: Math 11 or 30.* (5 units)

120. Economics of the Public Sector

Microeconomic analysis of the role of government in the market economy. Supply of public goods and services, government's role in controlling externalities and regulating private industry, and the economics of the political process. (5 units)

122. Money and Banking

Theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis on the relationship between the monetary and banking system and the rest of the economy. (5 units)

126. Economics and Law

Economic analysis of law and legal institutions focusing on the common law areas of property, contracts, and torts. (5 units)

127. Public Finance: Taxation

Analysis of various tax policies and their effect on the economy. Individual income taxes, corporate income taxes, consumption taxes, payroll taxes, state and local taxes, and other alternative forms of taxation. (5 units)

129. Economic Development

Causes and consequences of economic growth and poverty in less developed countries; analysis of the role of government policies in economic development. (5 units)

130. Latin American Economic Development

Examination of the economic development of Latin American countries, with particular emphasis on the relationships between economic growth and their social, political, and economic structures. (5 units)

134. African Economic Development

Examination of the economic development of sub-Saharan African countries, with particular emphasis on the relationships between economic growth and their social, political, and economic structures. (5 units)

135. Gender Issues in the Developing World

Explores the gendered nature of poverty in the developing world, with special focus on sub-Saharan Africa, using applied statistical analysis and economic theory. *Additional prerequisite: ECON 113.* (5 units)

136. 20th-Century Economic History

The development of the U.S. economy during the 20th century. Topics include the causes and consequences of economic growth, the Great Depression, the rise of government regulation, the changing role of women in the workforce, and the increasing internationalization of markets during the postwar period. *Additional prerequisite: ECON 115.* (5 units)

137. World Economic History

Development of Western and non-Western economies since the late 19th century. Topics include globalization and economic integration, convergence and divergence in economic growth across countries, international monetary systems, and the impact of alternative policies and institutional regimes on economic performance. (5 units)

138. History of Economic Thought

Origins and evolution of economic ideas in their historical and philosophical context. Emphasis on the theories of Adam Smith, David Ricardo, and Karl Marx, as well as the emergence of modern microeconomics and macroeconomics in the 19th and 20th centuries. (5 units)

139. American Economic History

Study of growth and institutional change in the U.S. economy since colonial times. Topics include early industrialization, the economics of slavery, and the rise of large business enterprises and labor unions. (5 units)

150. Labor Economics

Study of labor productivity, incomes and employment, and how these are affected by labor organizations and labor legislation. *Additional prerequisites: ECON 113 and OMIS 41.* (5 units)

155. Economics of Immigration

Examines economic impacts of post-1967 immigration to the United States. Topics include determinants of the migration decision, extent of "assimilation" of immigrants into the U.S. educational system and economy, and economic impacts of immigration on natives. *Additional prerequisite: OMIS 41.* (5 units)

156. Real Estate Economics

Economic analysis of real estate markets, including supply of and demand for land and improvements, legal aspects of real estate ownership and transactions, government regulation and taxation of real estate, and real estate markets in urban and regional economies. *Additional prerequisite: OMIS 41.* (5 units)

160. The Economics of Poverty and Inequality

Examines theories and evidence regarding poverty and economic inequality in the United States. Evaluates alternative public policies aimed at combating poverty. (5 units)

164. Vocation and Gender: Seeking Meaning in Work and Life

An interdisciplinary examination of vocation, understood as both a meaningful career and life outside of work. Incorporates theoretical and empirical methods of the disciplines of communication and economics to provide a rich set of tools with which to make discerning decisions on personal vocation. Economic models and empirical studies provide the framework for considering life choices while the field of communication enables analysis of the ways individuals and groups engage in interpersonal, organizational, and mediated communication surrounding work/life issues. *Prerequisite: Junior or senior standing. ECON 1, 2, and 3 are not required, but some prior economics course(s) are recommended.* (5 units)

170. Mathematical Economics and Optimization

Generalization and reformulation of many familiar micro- and macroeconomic models as mathematical systems. Focus on exploring the properties of these models using mathematical techniques. *Additional prerequisites: MATH 12 or 31, ECON 114 and 115 or permission of instructor.* (5 units)

172. Game Theory

Study of multi-person decision problems. Topics include solution concepts for games, strategic behavior, commitment, cooperation, and incentives. Games of complete and incomplete information. Emphasis on applications to real-world economic behavior. *Additional prerequisites: ECON 113 and MATH 12 or 31.* (5 units)

173. Econometrics

Statistical methods to analyze economic data. Estimation and hypothesis testing using multiple regression; time series and cross-section data. *Additional prerequisite: OMIS 41.* (5 units)

181. International Trade

Analysis of the theories of international trade and strategic interactions; assessment of the empirical patterns of trade; analysis of the political economy of protection, and

applications to policies guiding international competition. *Additional prerequisite: ECON 113.* (5 units)

182. International Finance and Open Economy Macroeconomics

Analysis of the monetary aspects of international economics, including the balance of payments, exchange rates and foreign exchange markets, speculative attacks and currency crises, and the implications of international trade and capital flows for macroeconomic activity and policy. *Additional prerequisite: ECON 115.* (5 units)

185. Economics of Technological Change

The economic determinants and consequences of technological change. Topics include research and development, joint ventures, patents and other intellectual property, university-industry and government-industry collaboration, and the relationship between antitrust and other regulatory policies and technological advances. (5 units)

190. Economics Seminar

Seminar on contemporary economic theories and problems. *Admission by invitation only.* (5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisite: Written proposal must be approved by instructor and chair at least one week prior to registration.* (1–5 units)

DEPARTMENT OF ENGLISH

Professors Emeriti: James P. Degnan, Francis X. Duggan, Christiaan T. Lievestro, Elizabeth J. Moran

Professors: Terry L. Beers, Michelle Burnham, Diane E. Dreher, Ronald T. Hansen *(Gerard Manley Hopkins, S.J., Professor),* John C. Hawley *(Department Chair),* Fred D. White

Associate Professors: Marc Bousquet, Phyllis R. Brown, Juliana Chang, Mary Judith Dunbar, Marilyn J. Edelstein, Eileen Razzari Elrod, Linda Garber, Charles T. Phipps, S.J., Juan Velasco

Assistant Professors: Andrew J. Garavel, S.J., Myisha Priest, Theodore J. Rynes, S.J.

Senior Lecturers: Simone J. Billings, Sherry Booth, Susan Frisbie, Jill Goodman-Gould, Claudia Mon Pere McIsaac, Cory Wade, Jeffrey L. Zorn

Renewable Term Lecturers: Rebecca Black, Stephen Carroll, Kirk Glaser, Heather Julien, Dolores LaGuardia, Cynthia Mahamdi, Sharon Merritt, Robert Michalski, Roseanne Quinn, Donald Riccomini, Jeremy Townley, Megan Williams

The Department of English affords students a thorough undergraduate education in the liberal arts centered on the history, theory, and aesthetics of literature and the art of writing. The knowledge and skills developed in English courses provide excellent preparation for careers in law, government, business, communications, and education, as well as for graduate study in literature, rhetoric, or creative writing. Students explore a broad range of approaches to literature, culture, new media and film, including feminist criticism, critical race theory, postcolonialism, semiotics, and queer theory, and they discuss traditional British and American texts as well as contemporary media and multicultural literatures from around the world. The Creative Writing Program offers students a coherent course of study in the

writing of poetry, fiction, and creative nonfiction. Electives focus on particular genres of creative writing, such as Lifewriting, Fantasy and Science Fiction, and Screenwriting.

The Department established the Canterbury Program in 1997 to support undergraduate research by English majors with competitively awarded grants to undertake significant independent research and/or writing projects in collaboration with department faculty; travel related to a student's project can also be funded. English majors have access to internships in professional writing in local businesses.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in English must complete the following departmental requirements:

- ENGL 20 and ENGL 21
- One Medieval; one Renaissance or 17th-century; one Enlightenment, Restoration, or 18th-century; one 19th-century Romantic course
- One additional historically grounded course (e.g., a survey course, a 20th-century course, etc.)

Of the above historically grounded courses, at least one must be British and one must be American.

- One upper-division writing/rhetoric/language course
- One upper-division theory/methodology course
- Three upper-division courses in the student's desired area of specialization, to be decided upon in consultation with the student's advisor. One of these courses may be taken outside the English Department with the chair's approval, and one may be lower division
- Two English electives, one of which may be lower division
- ENGL 188, the Senior Seminar

(Of the above 15 required English courses, one course must be in the area of gender/sexuality and one must be in the area of ethnic/global.)

REQUIREMENTS FOR THE MINOR

Minor in English

Students must fulfill the following requirements for a minor in English:

- ENGL 20 and 21
- Five English electives, four of which must be upper-division courses

Minor in Creative Writing

Students must fulfill the following requirements for a minor in creative writing:

- Two introductory courses: ENGL 71 and 72
- Two practicum courses: ENGL 90 and 190
- Three electives from ENGL 73, 126, 127, 170, 171, 172, 173, 175
- One additional advanced course from ENGL 171 and 172

PREPARATION IN ENGLISH FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach English in California secondary schools must pass a subject-area examination in English. The teaching credential itself requires the completion of an approved credential program, which can be completed as a fifth year with student teaching, or through a summer program and internship in conjunction with the undergraduate preteaching program. Students who are contemplating secondary school teaching in English should consult with the coordinator in the Department of English as early as possible.

LOWER-DIVISION COURSES

Note: Authors and topics listed in the following course descriptions are typical rather than definitive. They are not necessarily included in a specific course every time it is offered, and others not listed here may be included. Some courses are offered every year; all, ordinarily, are offered at least once every two years.

1A. Critical Thinking and Writing I

First course in a two-course, themed sequence featuring study and practice of academic discourse, with emphasis on critical reading and writing, composing processes, and rhetorical situation. (4 units)

2A. Critical Thinking and Writing II

Second course in a two-course, themed sequence featuring more advanced study and practice of academic discourse, with additional emphasis on information literacy and skills related to developing and organizing longer and more complex documents. *Prerequisite: ENGL 1.* (4 units)

1H. Critical Thinking and Writing I-Honors

A course in which students work intensively on their writing as they study and analyze short works of nonfiction and fiction. Students write primarily expository prose, occasionally researched. (4 units) NCX

2H. Critical Thinking and Writing II-Honors

A course in which students work intensively on their writing as they study and analyze long works of nonfiction and fiction. Students write both expository and argumentative prose and hone those skills pertinent to university research papers. *Prerequisite: ENGL 1H.* (4 units) NCX

11A. Cultures and Ideas I

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address cross-cultural contact; nature and imagination; and other topics. (4 units)

12A. Cultures and Ideas II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western Culture in its global context. Courses may address cross-cultural contact; nature and imagination; and other topics. (4 units)

20. Introduction to Literary Study

The foundation course of the English major program, ENGL 20 introduces students to the discursive and critical skills required for the study of literature, emphasizing critical

reading and writing, and requires practice in using various techniques of literary research. Required of all English majors and minors. Restricted to English majors and minors and creative writing minors only. *Prerequisites: ENGL 1 and 2.* (4 units) NCX

21. Introduction to Poetry

An introduction to the study of poetry through close reading and various kinds of writing, this course works toward a better understanding of the complex effects of poetry and the challenging work of literary criticism and theory. The main goals—greater understanding, appreciation, and enjoyment of poetry—will be achieved through the practice of critical analysis. (4 units) NCX

25. Reading Film

Introduction to key texts and concepts in the study of film, including prominent movements and figures in cinema, the language of film form, essential terms and concepts in film history and criticism, and the technological, economic, and institutional history of the film industry. (4 units)

31, 32. Survey of American Literature I, II

Historical survey of American literature from its beginnings to the present. (4 units)

35. African American Literature

Introduction to African American literatures. (4 units)

36. Chicano Literature

Introduction to Mexican American oral and written traditions. (4 units)

37. Native American Literature

Introduction to the study of Native American oral and written traditions, including contemporary works. (4 units)

38. Asian American Literature

Introduction to Asian American literatures. (4 units)

39. Multicultural Literature of the United States

Short stories, film, autobiography, and poetry from many cultural communities in the United States. (4 units)

41, 42, 43. Survey of English Literature I, II, III

Chronological survey of English literature from Beowulf to the present. (4 units)

54. Shakespeare

Readings in selected major plays. Combines writing instruction with a close reading of literary texts to serve as subjects and stimuli for writing. *Prerequisites: ENGL 1 and 2.* (4 units) NCX

66. Radical Imagination

Survey of the fiction, poetry, speeches, songs, drama, and film belonging to the large and often neglected tradition of political radicalism in the United States. (4 units)

67. U.S. Gay and Lesbian Literature

Development of gay and lesbian literature in the United States from the mid-19th century to the present. Texts may include novels, short stories, poetry, and drama. (4 units)

68. Literature and Women

Introduction to the study of literature by and about women, with special attention to questions of gender in their social and historical contexts. (4 units)

69. Literature by Women Writers of Color

A study of U.S. women of color writing in the context of their respective cultural and social histories. Analysis of the interplay of racial images. (4 units)

71. Fiction Writing

Introduction to the writing of fiction. (4 units) NCX

72. Poetry Writing

Introduction to the writing of poetry. (4 units) NCX

73. Life Writing

Introduction to reading contemporary models of life writing and writing memoir, autobiography, and dramatic nonfiction in a workshop setting. (4 units) NCX

77. Business Communication in Online Environments

Instruction and practice in adapting classical writing techniques to the requirements of the online world, with an emphasis on defining and understanding usability requirements for audience, content, format, interactivity, and graphics. Recommended for business majors, technical writers. *Prerequisites: ENGL 1 and 2.* (4 units) NCX

79. Writing about Literature and Culture

Instruction and practice in writing critically about selected literary and cultural texts. Topics vary from section to section. Combines writing instruction with a close reading of texts, which serve as subjects and stimuli for writing. *Prerequisites: ENGL 1 and 2.* (4 units) NCX

90. Practicum

Supervised practical application of previously studied subject matter. May be related to the California Legacy Project or to the *Santa Clara Review.* Students are graded P/NP only. May be repeated for credit. (variable units)

UPPER-DIVISION COURSES

100. Literature and Democracy

Studies of selected authors, works, and genres associated with the effort to extend political, social, and economic democracy. Possible major authors include Langston Hughes, Michael Gold, Meridel LeSueur, Tillie Olsen, Kenneth Fearing, Upton Sinclair, Emma Goldman, Frank Norris, Nelson Algren, Richard Wright, Dorothy Allison, Thomas King, and others. (5 units)

101. Linguistics

General survey of the science of linguistics: phonology, morphology, syntax, grammar, and usage. (5 units)

102. Theories of Modern Grammar

Analysis of the basic problems of describing grammatical structure: traditional, structural, and transformational-generative grammars. (5 units)

103. History of the English Language

Origin, structure, and development of the English language. Special attention to the morphology and syntax of Old English. (5 units)

104. Teaching English as a Second Language

Introduction to theories of instruction; survey of methods and materials used in the teaching of English to speakers of other languages. (5 units)

105. Literacy and Social Justice

This course examines how people learn to read and write in a variety of multicultural contexts. It explores theories about literacy and cultural identity, and literacy and social inequality. Readings include studies of workplace literacy, literacy variation across cultures in the U.S., and gender and literacy. (5 units)

110. Classical Tragedy

Also listed as CLAS 181 and THTR 181. For course description see CLAS 181. (5 units) NCX

111. Classical Comedy

Also listed as CLAS 182 and THTR 182. For course description see CLAS 182. (5 units) NCX

112. Topics in Theatre and Drama

Also listed as THTR 112 or 113. For course description see THTR 112 or 113. (5 units)

113. British Drama

Study of British drama. Authors vary each term. May focus on periods, movements, themes or issues. May be taken more than once when topics differ. *Also listed as THTR 111.* (5 units)

116. Shakespeare's Tragedies

An exploration of the great tragedies of Shakespeare's maturity: *Hamlet, Othello, Macbeth,* and *King Lear,* with special attention to the theatrical, religious, moral, gender, and political dimensions of Shakespeare's tragedies. *Also listed as THTR 116.* (5 units)

117. Shakespeare's Comedies

An exploration of a selected number of Shakespeare's comedies from his early, middle, and late periods, with particular attention to the social and sexual roles of men and women. *Also listed as THTR 117.* (5 units)

118. Shakespeare Studies

An exploration of a selection of Shakespeare's plays with particular attention to an important topic chosen for focus and specified in the course description subtitle—for example, Shakespeare and Classical Traditions, Shakespeare and Gender, Shakespeare and Justice, Shakespeare's Histories, Shakespeare's Tragicomedies, Shakespeare and Film. May be taken more than once when topics differ. *Also listed as THTR 118.* (5 units)

121. Studies in American Film

Study of selected American films. May focus on periods, movements, and issues such as surrealism in film, the American city in film, utopias and dystopias in film. (5 units)

122. Film, Gender, and Sexuality

Interdisciplinary study of film with a focus of gender and sexuality. Topics may include, but are not limited to, feminist and queer film theory; women filmmakers; lesbian/gay cinema; constructions of gender in popular film. May be taken more than once when topics differ. (5 units)

123. Studies in the History of Literary Theory

Exploration of some major ideas and debates in literary theory and criticism, as these have developed over time, e.g., whether and how literature is good for individuals and/or society, how writers create their works and readers read them. (5 units)

124. Studies in Contemporary Literary and Cultural Theory

Exploration of one or more major movements in recent literary and cultural theory, such as Marxism, feminism, deconstruction, reader response, New Historicism, cultural studies, postcolonial theory, narrative theory. (5 units)

125. Feminist Literary Theory and Criticism

Study of 20th-century feminist literary theory and criticism. Examination of influences of gender on reading and writing literature. (5 units)

126. Creative Writing and Social Justice

This course will explore the intersections of creative writing, social justice, and vocation with special attention to issues of poverty and homelessness. Students will read and write creative prose and poetry, have a brief community placement, and learn from several guest speakers. (5 units)

127. Writing Fantasy and Science Fiction

Instruction and practice in planning and drafting short works of fantasy or science fiction for an adult or young-adult (but not juvenile) audience. (5 units) NCX

128. Studies in the Literature of the Middle Eastern and Islamic World

Exploration of selected texts of the Middle Eastern and Islamic world. Authors could include Elias Khoury, Laila Lalami, Liana Badr, Leila Abouleta, Orhan Pamuk, Amos Oz, and others. (5 units)

129. California Literature

Literature written by Californians and/or about California. Authors may include Steinbeck, Jeffers, Ginsberg, Didion, and Snyder. (5 units)

130. Studies in African American Literature

Study of selected works in African American literature. May be taken more than once when topics differ. (5 units)

131. Studies in Early American Literature

Study of selected works from the beginnings of American literary history up to the 19th century. Writers, genres, and topics vary each term. Works may include journals, poetry, slave narratives, sermons, letters, legends, autobiographies, essays, and early fiction. May focus on periods and issues such as the literature of cultural contact and European settlement, Puritanism, the Enlightenment, and the American Revolution. May be taken more than once when topics differ. (5 units)

132. Studies in 19th-Century American Literature

Study of selected American works from the 19th century. Writers, genres, and topics vary each term. May focus on periods, movements, and issues such as American romanticism, transcendentalism, realism and naturalism, regionalism, magazine writing, the rise of women writers, and literature of social protest (abolition and suffrage). May include fiction (short stories, novels, and sketches), plays, poetry, essays, slave narratives, and autobiographies. May be taken more than once when topics differ. (5 units)

133. Studies in Modern American Literature

Study of selected American works from the early part of the 20th century. Writers and genres vary each term. May focus on periods, movements, and issues such as American expatriate literature, novels of social conscience, the modern poetic sequence, the Harlem Renaissance, modernism, magazine fiction, or regional poetry. Works may include fiction (short stories, novels, sketches), plays, poetry, essays, and autobiographies. May be taken more than once when topics differ. (5 units)

134. Studies in Contemporary American Literature

Study of selected works by contemporary American writers. Writers, genres, and topics vary each term. May focus on periods, movements, and themes such as multi-ethnic literatures, contemporary women novelists, postmodernism, the Beat generation, literature and politics, literature of the 1960s, or experiments in poetic and narrative form. Genres may include poetry, novels, short stories, essays, plays, and/or autobiographies. May be taken more than once when topics differ. (5 units)

135. Studies in American Fiction

Study of selected American fiction. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. (5 units)

137. Studies in American Poetry

Study of selected American poetry. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. (5 units)

138. Internet Culture and Information Society

Introduction to major issues raised by Internet-mediated community and sociability, including the proliferation of subcultures and countercultures. (5 units)

139. Special Topics in American Literature

Advanced study of an issue, theme, or genre in American literature that crosses historical periods. Topics change each term. May be taken more than once when topics differ. (5 units) NCX

140. Studies in Chicano Literature

Studies in Chicano literary traditions. (5 units)

141. Medieval Literature

Medieval literature in its political, religious, historical, social, and cultural contexts. May be taken more than once when topics differ. (5 units)

143. Renaissance Literature

Renaissance literature in its political, religious, historical, social, and cultural contexts. May be taken more than once when topics differ. (5 units)

146. Neoclassical Literature

The literature of England and Ireland from 1660 to 1798, excluding the novel. Authors may include Congreve, Dryden, Swift, Pope, Finch, Montagu, Johnson, Boswell, and Wollstonecraft. (5 units)

147. Romantic Movement

The literature of England from 1798 to 1832. Authors may include Blake, Burns, Wordsworth, Coleridge, Byron, the Shelleys, and Keats. (5 units)

148. Victorian Literature

The literature of England from 1833 to 1902. Authors may include Carlyle, the Brontés, Tennyson, the Brownings, Newman, Ruskin, Arnold, and Hopkins. (5 units)

149. Modern British Literature

Twentieth-century poetry and prose. Authors may include Owen, Hardy, Conrad, Yeats, Joyce, Lawrence, Eliot, and Woolf. (5 units)

150. Contemporary Literature

British, American, and world poetry, fiction, and drama since World War II. Authors may include Cheever, Leavitt, Amis, Duong Thu Huong, Carey, and Kincaid. (5 units)

151. Studies in British Fiction

The study of selected British fiction. Authors vary each term. May focus on periods, movements, themes, or issues. May be taken more than once when topics differ. (5 units)

152. Women, Literature, and Theory

Study of literatures by and about women in explicitly theoretical contexts. May be repeated for credit when topics differ. (5 units)

153. Asian Gay and Lesbian Cultures

Interdisciplinary study of gay and lesbian cultures and critical theory. May be taken more than once when topics differ. (5 units)

155. Studies in Asian American Literature

Study of selected works in Asian American literature. (5 units)

156. Gay and Lesbian Cultural Studies

Interdisciplinary study of gay and lesbian cultures and critical theory. May be taken more than once when topics differ. (5 units)

157. Postcolonial and Commonwealth Literature and Theory

Literature written with a postcolonial emphasis since 1945 in former European colonies (e.g., India, Nigeria, Jamaica, Australia, Morocco, Egypt, Brazil, Colombia). Some writings from postcolonial theorists, such as Frantz Fanon and Edward Said. (5 units)

158. Studies in Native American Literature

Study of selected works in Native American literature. Course may focus on particular authors (Leslie Marmon Silko, Louise Erdrich, James Welch), particular tribal or regional literatures, genres (autobiography, poetry, novel), or topics (trickster discourse, landscape, historical representation). (5 units)

159. Indian Subcontinental and Diasporic Literature

Readings in the literatures of India, Pakistan, Bangladesh, Sri Lanka, and of Indians/Pakistanis in the United Kingdom, the United States, and elsewhere. (5 units)

160. Children's Literature

Study of the theory and practice of children's literature with special attention to the history of children's literature, the debate over the kinds of texts best suited for teaching reading, and multiculturalism. (5 units)

161. The Bible as Literature

Literary genres of the Bible (myth, history, wisdom, prophecy, gospel) studied in translations from the Hebrew and Greek against the background of Mesopotamian, Babylonian, Egyptian, Hellenistic, and Roman cultures. (5 units)

162. Studies in Comparative Literature

Comparative study of selected works, in translation if not written in English, from more than one linguistic and/or national category, organized by theme, genre, or time period. May be taken more than once when topics differ. (5 units)

165. African Literature

Readings in the contemporary literature of Africa, including the entire continent: literature in English and in translation. (5 units)

166. Pan-African Literature

Readings in the literature of the black diaspora. Writers from Africa, the Caribbean, and the United States. (5 units)

167. Modern Fiction

Selected works of continental, English, and American fiction that are peculiarly modern in sensibility or style. (5 units)

168. Women and Literature

Studies in literature by and about women. Authors, genres, historical periods, and themes change from year to year. May be repeated for credit by permission of department chair. (5 units)

169. Non-English Literature in Translation

Non-English literature in translation. Areas and topics vary from year to year. (5 units)

170. Writing for Children and Young Adults

Workshop in writing and illustrating children's and young adults' books. (5 units) NCX

171. Advanced Fiction Writing

Writing fiction, with emphasis on the short story. May be repeated for credit. *Prerequisite: ENGL 71.* (5 units) NCX

172. Advanced Poetry Writing

Workshop in the writing of poetry. May be repeated for credit. *Prerequisite: ENGL 72.* (5 units) NCX

173. Screenwriting

An introduction to the fundamentals and format of screenplay writing. Critical analysis of characterization and narrative structure in contemporary movies, as well as workshops in the writing of film treatments, outlines, and scripts. May be repeated for credit. *Also listed as THTR 173. Prerequisite: ENGL 71 or permission of the instructor.* (5 units) NCX

174. Nonfiction Writing

Study of and extensive practice in reading and writing nonfiction. Stress on analysis and rhetorical reading and writing skills, as well as the process of revising students' own writing. Readings and writing will be organized around a topic, such as travel writing, nature writing, or science and the environment. May be repeated for credit. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

175. Creative Nonfiction

Development of skills in the elements of creative nonfiction, such as narration, character development, persona, and voice. Focus is on one or more modes of creative nonfiction, such as landscape writing, popular culture, literary journalism, profile, and memoir. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

176. Intensive Writing

Extension of instruction in explanatory and exploratory academic writing principles introduced in prior courses. Activities include readings and intensive writing in a variety of topics across the curriculum with emphasis on revision of student writing through drafts, peer, and instructor review. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

177. Argumentation

Argumentative and persuasive writing, ideal for students planning careers in business, politics, or law. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

178. Technical Writing

Instruction in the writing of formal reports, procedures, proposals, and journalistic pieces, such as brochures and feature articles. Attention given to techniques of information gathering (including conducting interviews and surveys), document design, and editing. Open to students of all majors. Ideal for those planning careers in health care, the sciences, or industry. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

179. Practical Business Rhetoric

Instruction in various strategies for crafting an appropriate and attractive business personality through résumés and cover letters, job interviews, informal public speaking, e-mail, and other correspondence. *Prerequisites: ENGL 1 and 2. Priority given to juniors and seniors. Sophomores by permission of instructor.* (5 units) NCX

180. Writing for Teachers

Prepares prospective teachers at all school levels for their responsibilities in the instruction of writing. One method employed will be close, intensive work with each student's own expository prose. A second method will be to investigate controversies in English education and composition studies. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

181. Applied Engineering Communications I

The first half of a required two-course sequence in advanced writing for senior engineering majors. *Prerequisites: ENGL 1 and 2. Enrollment by permission of instructor.* (2 units)

182. Applied Engineering Communications II

The second half of a required two-course sequence in advanced writing for senior engineering majors. *Prerequisite: ENGL 181. Enrollment by permission of instructor.* (1 unit)

183. Writing for Business

A course in applied business rhetoric in which, individually and collaboratively, students will produce the kind of writing they can expect to encounter in the workplace, from résumés and e-mail, to quantitative and qualitative analyses, collaterals and executive summaries, formal reports and evaluations, etc., culminating in the development and delivery of an actual community service project designed to further Santa Clara's mission. *Prerequisites: ENGL 1 and 2. Priority given to juniors and seniors. Sophomores by permission of instructor.* (5 units) NCX

184. Special Topics

Major authors, genres, literary or theoretical movements, or themes. May be repeated for credit when topics differ. (5 units)

185. Grants, Proposals, and Reports

Study of and practice in the professional writing of grants, proposals, and reports. Analysis of subject matter, length, purpose, information sources, number and kind of readers, and the circumstances that lead to preparation. *Prerequisites: ENGL 1 and 2.* (5 units) NCX

186. Women in Antiquity

Investigation into the representation and the reality of women's lives in ancient Greece or Rome. Focus varies from year to year. May be repeated for credit when topics differ. *Also listed as CLAS 185 or 186.* (5 units)

187. Classical Mythology in the Western Tradition

Also listed as CLAS 184. For course description see CLAS 184. (5 units)

188. Senior Seminar

Special topics in English, American, or comparative literature for senior English majors. Enrollment by permission of instructor. (5 units) NCX

189. Literature and Religion

Exploration and analysis of central connections between religious and ethical questions, concerns, topics, and movements and their literary expressions in different social, cultural, individual, historical, geographical, and/or political contexts. May be repeated for credit when topics differ. (5 units)

190. Practicum

Supervised practical application of previously studied subject matter. May be related to the California Legacy Project or to the Santa Clara Literary review. Students are graded P/NP only. May be repeated for credit. (variable units)

190A. Practicum for Writing Tutors

Students will study composition and teaching-learning theory and will explore how to apply best practices to both individual instruction and at a class-level. Students who receive a grade of "B" or better in this practicum may then apply to work in SCU's writing center, the Hub. (5 units)

190B. Practicum for Tutor Certification

Students who have completed at least 30 hours in the writing center may apply for certification. In addition to positive performance evaluations, students seeking certification will complete a special project. Students are graded P/NP only. (3 units)

191. Peer Educator in English

Peer educators are invited by faculty to work closely with them, facilitating learning in a lower-division course. May be repeated for credit by permission of the instructor. (2 units)

192. American Theatre from Black Perspective

Also listed as THTR 161. For course description see THTR 161. (5 units)

193W. Playwriting

Also listed as THTR 170 (Playwriting). For course description see THTR 170. May be repeated for credit when topics differ. (5 units) NCX

193. Advanced Playwriting

Also listed as THTR 171 (Advanced Playwriting). For course description see THTR 171. May be repeated for credit when topics differ. (5 units) NCX

194. Literature and Performance

Also listed as THTR 160. For course description see THTR 160. (5 units)

195. Dramaturgy

Also listed as THTR 185. For course description see THTR 185. (5 units)

196. Writing in the Community

In this class, fiction writers and poets facilitate creative writing workshops at placements and agencies served by the Arrupe Center. *Permission of instructor required.* (5 units) NCX

197. Practicum in Tutoring Composition

Training in the tutoring of writing. Open to students of all majors who have strong writing skills and who enjoy helping fellow students improve their work. Tutors are paired with freshman composition students, prepare reports of their tutorials, and write analytical papers about the tutoring experience. (5 units)

198. Writing Internship

Work-study program for students of superior writing ability who gain course credit by supervised writing on newspapers, magazines, or for government or private agencies. Enrollment is by permission or invitation of the instructor and department chair. May be repeated once for credit. Students are graded P/NP only. (5 units) NCX

199. Directed Reading/ Directed Research

In special circumstances and with permission of the department chair, a student may request a course in directed reading or writing from an instructor. May not be taken in a subject listed in this bulletin. (5 units) NCX

ENVIRONMENTAL STUDIES PROGRAM

Associate Professors: Leslie Gray *(Executive Director),* Lisa Kealhofer, Michelle Marvier
Assistant Professor: Iris Stewart-Frey *(Clare Boothe Luce Professor)*

The Environmental Studies Institute offers interdisciplinary programs of study leading to either a Bachelor of Science in Environmental Science or a companion major in Environmental Studies. The companion major in environmental studies is offered as a secondary major; students majoring in environmental studies also must complete the requirements for a primary major. The environmental studies major works well with a wide variety of primary majors, including anthropology, communication, political science, and economics. A minor in environmental studies and a special version of the environmental studies minor for engineering majors also are available. Both the environmental studies and environmental science programs provide students with the intellectual and ethical foundations they will need in addressing crucial environmental challenges of the 21st century: e.g., human population growth, urban sprawl, deforestation, global climate change, waste disposal, the need for renewable energy, air and water pollution, and loss of biodiversity.

Environmental studies programs are enriched by colloquia, including bi-weekly seminars, featuring presentations on environmental subjects by journalists, politicians, businesspeople, scientists, and other scholars. Majors in environmental science and environmental studies are expected to apply their knowledge outside the classroom by completing an approved internship or research experience, culminating in ENVS 198 Environmental Proseminar.

Environmental studies students are encouraged to study abroad in programs approved by the department. Courses such as Natural History of Baja include one week of immersion travel during University breaks. Environmental studies faculty occasionally offer summer courses in Costa Rica or in Trinidad and Tobago. In addition, many summer and academic year courses taken through the International Programs Office readily transfer for credit toward environmental studies majors and minors.

Each student works with an environmental studies faculty advisor, who helps integrate the classroom curriculum with the student's plans for future study and/or work in environmental fields.

REQUIREMENTS FOR THE MAJORS

Major in Environmental Science

In addition to fulfilling University Core Curriculum and College of Arts and Sciences requirements for the Bachelor of Science degree, students majoring in environmental science must complete the following departmental requirements:

- ENVS 11, 12, 13
- CHEM 11, 12, 13
- BIOL 21, 22, 23
- MATH 11, 12
- ECON 1
- PHIL 9 or TESP 84
- One course from ANTH 50, ENVS 50, ENVS 79, HIST 85, POLI 50, SOCI 50
- ENVS 101

- ENVS 198
- One course from BIOL 160, CENG 160, ENVS 110, ENVS 115
- Four courses from ANTH 130, ANTH 142, ANTH 145, BIOL 120, BIOL 131, BIOL 133/ENVS 133, BIOL 150, BIOL 151/ENVS 151, BIOL 156/ENVS 156, BIOL 157/ENVS 141, BIOL 158, BIOL 165, BIOL173, BIOL 180, CENG 140, CENG 143, CENG 163, ENVS 144, ENVS 145,ENVS 151, ENVS 170–189, ENVS 197
- Two courses from ANTH 140, ANTH 155, COMM 120, ECON 101, ECON 111, ECON 129, ECON 130, ECON 134, ENGL 185, ENVS 120, ENVS 122, ENVS 131, ENVS 142, ENVS 146, ENVS 147, ENVS 158/PSYC 158, ENVS 170–189, ENVS 196, ETHN 156, HIST 184, POLI 167, SOCI 138, TESP 173
- Attend six environmental studies colloquia

Companion Major in Environmental Studies

In addition to fulfilling University Core Curriculum and the requirements of their primary major, students with a companion major in environmental studies must complete the following requirements:

- ENVS 11, 12, 13
- ECON 1
- PHIL 9 or TESP 84
- HIST 85 or ENVS 79
- One course from ANTH 50, ENVS 50, POLI 50, SOCI 50
- ENVS 101
- ENVS 198
- One course from BUSN 40, COMM 110, ENVS 110, OMIS 40, POLI 170, PSYC 40, SOCI 120
- One course from ANTH 145, ANTH 155, COMM 120, ENGL 185, ENVS 115, ENVS 131, ENVS 142
- Attend six environmental studies colloquia

Students pursuing a companion major in environmental studies choose from three concentrations.

Environmental Economics and Sustainable Business Concentration

- Three courses from ECON 101, ECON 111, ECON 120, ECON 129, ECON 130, ECON 134, ENVS 189, MKTG 182, OMIS 108E
- One course from ENVS 120, ENVS 122, ENVS 185, ENVS 188, ETHN 156, POLI 146, POLI 167

Environmental Policy and Law Concentration

- Three courses from ENVS 120, ENVS 122, ENVS 162, ENVS 163, ENVS 185, ENVS 188, ETHN 156, POLI 146, POLI 167

- One course from ECON 101, ECON 111, ECON 120, ECON 129, ECON 130, ECON 134, ENVS 189

Sustainable Development Concentration

- Three courses from ANTH 140, ENVS 141, ENVS 144, ENVS 145, ENVS 146, ENVS 147, ENVS 158/PSYC 158, ENVS 184, ENVS 186, ENVS 189, SOCI 138
- One course from ECON 101, ECON 111, ECON 120, ECON 129, ECON 130, ECON 134, ENVS 189, MKTG 182, OMIS 108E, ENVS 120, ENVS 122, ENVS 185, ENVS 188, ETHN 156, POLI 146, POLI 167

REQUIREMENTS FOR THE MINORS

Minor in Environmental Studies

Students must fulfill the following requirements for a minor in environmental studies:

- ENVS 11, 12, 13
- One statistics course from BIOL 160, BUSN 40, COMM 110, ENVS 110, POLI 170, PSYC 40, SOCI 120
- One ethical or spiritual issues course from PHIL 9, TESP 84, TESP 173
- Two economic dimensions courses: ECON 1 and ECON 111
- One political and legal dimensions course from COMM 120, ENVS 120, ENVS 122, ENVS 140, ETHN 156
- One elective course from any courses listed above or ANTH 145, BIOL 131/ENVS 132, BIOL 133/ENVS 133, BIOL 150, BIOL 156/ENVS 156, CENG 143, CENG 160, CENG 163, ECON 101, ECON 111, ENVS 10, ENVS 20, ENVS 79, ENVS 115, ENVS 131, ENVS 141, EVNS 142, EVNS 144–147, EVNS 151, ENVS 158/PSYC 158, ENVS 196–199
- Attend six environmental studies colloquia

Minor in Environmental Studies for Engineers

Students majoring in engineering must fulfill the following requirements for a minor in environmental studies:

- ENVS 11 or 13
- Two social, political, and legal dimensions courses from ENVS 120, ENVS 122, ENVS 144, ENVS 146, ENVS 147, HIST 85
- One ethical and spiritual dimensions course from PHIL 9, TESP 84, TESP 173
- CENG 121, CENG 140, CENG 143
- Two courses from CENG 123, CENG 139, CENG 142, CENG 144, CENG 160, CENG 162
- CENG 192A and CENG 193; Senior design project must have an environmental focus and is subject to approval by the environmental studies director
- Attend six environmental studies colloquia

LOWER-DIVISION COURSES: ENVIRONMENTAL STUDIES

1A and 2A. Analyzing Environmental Rhetoric

This course, reserved for freshmen participating in the Sustainable Living Undergraduate Research Project, SLURP, will explore rhetoric surrounding current environmental issues. Since this course is a special pilot for the new University core, students will be enrolled in a two-quarter sequence that will not only fulfill their first-year writing requirements, but will give them the opportunity to explore issues of environmental criticism with a variety of media. All students taking this course will have the privilege of living on the SLURP floor as part of the CyPhi Residential Learning Community, and will thus have the opportunity to participate in a unique community dedicated to promoting a culture of environmental sustainability within the University. (4 units) NCX

2. Energy and the Environment

Energy has been a top news story over the past years. In this course, we explore the basics of energy production, alternative ways of producing energy and alternative energy sources including natural gas, nuclear, biomass, wind, solar, hydropower, and fuel cells. Students will gain an understanding of the environmental impacts of energy production, our present energy crisis, and prospects for the future. (4 units)

10. The Joy of Garbage

What happens to the things we don't want? This class follows the path of our waste products as they are burnt, decomposed, landfilled, treated, recycled, reused, dumped on minority communities, or shipped abroad. Building on basic chemical and biological principles, and using the scientific method to guide us, we will explore the fates of organic and nonorganic detritus, and search for sustainable solutions to waste problems. (4 units)

11. Introduction to Environmental Science

This course offers a broad introduction to the major environmental threats facing the world, as well as the key questions or policy debates surrounding our response to these threats. Problems such as habitat destruction, over-harvesting, invasive species, emerging diseases, and global warming cannot be addressed without considering the diversity of cultures and socioeconomic conditions in the global community. Lectures will deliberately contrast the means and obstacles to tackling environmental issues in developed vs. developing countries. In-class and independent research assignments will help students to develop critical thinking skills needed to analyze and present information pertaining to environmental issues. (4 units)

12. Introduction to Environmental Studies

Human degradation of the global environment is an overarching concern for contemporary and future societies. The field of environmental studies is a relatively new, interdisciplinary field that draws heavily from the social sciences to propose ways society can develop environmental solutions. This is a survey course that will enable students to understand the composition and evolution of environmental studies as a field, and provide them tools to analyze environmental problems and solutions on a local, national, and global scale. This course will introduce students to: 1. the major environmental problems facing human societies; 2. the key social science disciplines and their contributions to the field of environmental studies; 3. the methodologies used by these disciplines and the way they shape understanding of nature/society relations; and 4. the importance of ethics and leadership in developing environmental solutions. (4 units)

13. Soil, Water, and Air L&L

This course focuses on the contributions of the geological and physical sciences to environmental science. The basic physical and geological processes that shape the Earth and govern changes in the environment are discussed. We will address questions regarding the continents, landscapes, oceans, freshwater reservoirs, and the atmosphere. How did they form? Which processes are taking place to change them? How are they affected by human action? Understanding of the concepts will be deepened by laboratory activities and field trips. Laboratory and field work 15 hours. (4 units)

20. The Water Wars of California L&L

In California, the average person uses about 230 gallons of water a day while most of the population is concentrated in areas that receive less than 20 inches of rainfall per year. This course will use the history of water resource use and abuse in the state of California as a backdrop for investigating the interplay of hydrology, climate, and human population growth. Students will examine factors that affect the supply, distribution, demand, and quality of freshwater in the state of California. The important roles of climatic processes, variability, and global climate change will be highlighted, and population pressures on water resources will be analyzed. Concepts will be reinforced by field projects and through comparative case studies from California and beyond. Laboratory 15 hours. (4 units)

39. Drawing from Nature

Development of basic drawing skills using natural subjects to encourage interest in future self-motivated drawing. Projects include drawing from nature using pencils, pen, and ink; drawing perspective, seeing proportions, line drawing, and shading techniques; drawing birds, trees, rocks, water, and clouds. (4 units) NCX

50. World Geography

Provides an understanding of world geography through an appreciation of contemporary global problems. Problems include the environmental crisis, international relations, demographic trends, and economic development. Special emphasis on world hunger and the roots of third-world poverty. (4 units)

79. Environmental Literature of California

This course surveys the diverse literature celebrating the California landscape. A broad range of genres and literatures will be examined, including such authors as Charles Fremont, John Muir, Mary Austin, Robinson Jeffers, Richard Brautigan, Gary Snyder, Gretel Ehrlich, and William Saroyan. Students will engage in a program of ecocritical writing designed to develop advanced writing skills while promoting ecological literacy. *Also listed as ENGL 79. Prerequisites: ENGL 1 and 2.* (4 units) NCX

95. Sustainable Living Undergraduate Research Project (SLURP)

This course, jointly sponsored by the Environmental Studies Institute and the CyPhi Residential Learning Community, is designed to promote a culture of sustainability within the residential communities of the modern university. Students will engage in intensive research over the course of the academic year and will compile and present their results during the spring quarter. *Enrollment is limited to residents of the SLURP floor in the CyPhi RLC.* (4 units) NCX

98. Outdoor Leadership Experience (OLE)

This course uses instruction in wilderness safety, outdoor technical skills and low-impact camping to develop leadership skills and an appreciation of the natural world. An online application is required prior to instructor approval. Application forms will be made available at the beginning of the quarter prior to the course offering. Students are graded P/NP only. (2 units) NCX

UPPER-DIVISION COURSES: ENVIRONMENTAL STUDIES

101. Capstone Seminar

Capstone is a guided group and individual research course that each year is aimed at a different environmental topic of global significance. Past topics have included the regulation of biotechnology, using ecosystem services to create financial incentives for conservation, the social equity and biological effectiveness of private land conservation, and the national choices facing China with respect to agricultural policy. The course begins with lectures so that students gain a foundational background for the quarter's research topic. Students write individual papers, group papers, give oral presentations, and develop project management skills. Some students pursue their research after the course, even to the point of publication. (5 units) NCX

110. Statistics for Environmental Science L&L

A course in applied statistics for biologists and environmental scientists planning to conduct manipulative experiments. Students gain training in experimental design, quantitative analysis, and hypothesis testing. Theory and concepts are covered in lectures and readings. Laboratory sessions provide practical experience in computing statistical procedures by hand and with statistical software. Examples used in lectures and lab assignments are derived from medical research, physiology, genetics, ecology, and environmental risk assessment. Laboratory 30 hours. *Also listed as BIOL 160. Prerequisite: BIOL 23 or permission of instructor.* (5 units)

115. GIS in Environmental Science L&L

A working knowledge of Geographic Information Systems (GIS) is essential for many careers in environmental science. This class and laboratory will focus on methods of generating, querying, analyzing, and displaying GIS data utilizing industry standard software. Possible topics include land use change, pollution, and population growth issues. Each student will propose and carry out a GIS project with an environmental application. Laboratory 30 hours. (5 units)

120. Introduction to Environmental Law and Regulation in the United States

Introduction to the U.S. legal system's approach to environmental protection. Topics include the roles of legislatures and environmental agencies at the federal, state, and local levels; the independent role of the judiciary in establishing environmental law; and specific statutes, such as the Clean Air Act. Students evaluate questions of federalism, uses of economic incentives, and relationships between environmental protection and economic growth. (5 units)

122. U.S. Environmental Policy

This course will focus on U.S. environmental policy between 1960 and the present, highlighting the Endangered Species Act, Clean Water Act, Clean Air Act, and policy responses to global warming. Through these four foci, we will gain an understanding of how policy is formulated, how one might measure its consequences, and the role of communication and politics in moving policy forward (or blocking policy advances). We will focus on how the various environmental acts mentioned above came to be and the ongoing policy debates surrounding their administration and implementation. (5 units)

131. Environmental Education

Environmental Education plays a fundamental role in our attempts to make human systems more sustainable. This course is an introduction to the study and practice of Environmental Education. It surveys philosophies, theories, and methods of Environmental Education with a special emphasis on techniques for engaging K-12

students in outdoor settings to maximize learning of environmental concepts and to improve the students' understanding of their personal connections to nature. The course will introduce creative ways that we — as current or future teachers, parents, or mentors — can use active study of and interactions with the outdoor environment to engage young people in the study of environmental systems and basic biological, chemical, and physical sciences. A portion of the course will be taught in field-based settings. Students will participate in service learning projects that will give them practical experience planning and leading environmental education lessons. This course is especially valuable for future teachers. (5 units) NCX

132. Agroecology L&L

The goal of agroecology is to reduce the negative environmental impact of farming while meeting the food needs of the world. The course examines in a holistic framework the biological, technical, socio-economic, and political processes that govern agroecosystem productivity and stability. A wide variety of current agricultural practices are assessed and discussed. Management techniques and farming systems' designs that sustain long-term production are emphasized. One required weekend field trip. Laboratory 30 hours. (5 units)

140. Sustainability Outreach

This course aims to deepen students' understanding of sustainability. Students participate in an outreach program designed to facilitate sustainable development at Bay Area high schools. Each high school's efforts will be a microcosm of sustainable development and a leadership learning experience for the high school students and SCU students, their mentors. Readings and in-class discussions will also enhance students' ethical understanding of sustainability. (1 unit) NCX

141. Environmental Biology in the Tropics

This summer course examines tropical biology and ecology and their relationship to issues of sustainable development. One week of instruction at SCU and three weeks of field study in Costa Rica. Particular emphasis on primate biology, reforestation and restoration ecology, mangrove conservation, sustainable agriculture and fair trade, and ecotourism. Taught in conjunction with ENVS 39. Enrollment by application via International Programs. *Also listed as BIOL 141. Prerequisite: BIOL 23.* (5 units) NCX

142. Environmental and Nature Writing

Students in this course will compose a finished article for publication in a magazine or journal after having engaged in market research, analysis of submission guidelines for select periodicals, discourse analysis, and correspondence with editors. Students may choose to participate in either discourse, that of environmental writing or that of nature writing, and may elect to write for either a general or scholarly audience. Students will mail a manuscript to an editor on the final day of class. *Also listed as ENGL 174. Prerequisites: ENGL 1 and 2.* (5 units) NCX

144. Natural History of Baja

Course examines natural history, biology, and ecology of desert and coastal ecosystems in Baja California Sur, and explores issues of development and sustainability. Course will meet in the winter quarter and over spring break in Baja California, Mexico. *Students must be co-enrolled in ENVS 142 (Environmental and Nature Writing). Instructor permission required to register in both courses.* (5 units)

145. Environmental Technology

A survey course covering a variety of environmentally conscious technologies. Course addresses "bleeding edge" as well as more

traditional technologies that enhance both human welfare and environmental quality in both the developed and developing countries. We will concentrate on environmentally conscious technologies used in the general areas of air quality, biotic systems, climate, energy, land, population, transportation, waste, and water. (5 units)

146. Agriculture, Environment, and Development: Latin America

This course offers a cross-disciplinary examination of the prospects for "sustainable development" in rural areas of Latin America. We will use diverse points of view to look at interactions between poverty, development, and environmental degradation. While there is no single, universally accepted definition of sustainable development, a central goal of this course is that each student come away with the ability to understand the key elements that distinguish different discourses on this subject. (5 units)

147. International Environment and Development

This course examines the intersection of environment and development in the developing world. Students will explore meanings and measures of development as well as international institutions that influence development and environmental policy. Conceptual frameworks for addressing human-environmental relationships, including globalization, famine and hunger, sustainable development, population-poverty interactions and gender will be explored. Specific topics to be covered include deforestation, water use, conservation and development, oil extraction, and urbanization. (5 units)

149. Politics of African Development

Examines why Africa is the poorest region of the world, focusing on legacies of colonialism, failed political systems, poor economic choices, and external interventions. Discussion of how some states have collapsed into warlordism, civil war, and genocide and how others are creating democratic movements to reverse a history of economic decline. *Also listed as POLI 146.* (5 units)

151. Restoration Ecology L&L

The science and practice of restoring degraded ecosystems, with an emphasis on plant ecology. Through fieldwork in restoration experiments and examination of case studies from the literature, students will grapple with basic questions: How do we decide what to restore? How do we restore it? And how do we know if we're finished? Emphasis on reading and writing scientific papers, working with data, and critically judging the success of restoration projects in meeting goals of biodiversity and ecosystem function. Laboratory and field work 30 hours. *Also listed as BIOL 151. Prerequisite: BIOL 23.* (5 units)

156. General Ecology L&L

Quantitative study of the interrelationships of organisms with their biotic and abiotic environments. Emphasis on population dynamics, interspecific relationships, community structure, and ecosystem processes. Laboratory and field work 30 hours, typically including one weekend field trip. *Also listed as BIOL 156. Prerequisites: BIOL 23 and MATH 11.* (5 units)

158. Conservation Psychology

Many environmental problems (e.g., global warming, pollution, biodiversity loss, and resource depletion) are caused by human behavior, and changing this behavior is necessary in order to solve them. Topics include psychological reasons (emotions, thoughts, values, motivations, social context) why people behave in environmentally sustainable or unsustainable ways, and how psychology can be used to develop policies and other interventions to help promote sustainable behavior. *Also listed as PSYC 158. Prerequisites: PSYC 1, 2, 40, 43, or permission of the instructor.* (5 units)

195. Sustainable Living Undergraduate Research Project (SLURP)

This course, jointly sponsored by the Environmental Studies Institute and the CyPhi Residential Learning Community, is designed to promote a culture of sustainability within the residential communities of the modern university. Students will engage in intensive research over the course of the academic year and will compile and present their results during the spring quarter. *Enrollment is limited to residents of the SLURP floor in the CyPhi RLC.* (5 units) NCX

196. Special Topics in Environmental Studies

Course content and topics vary depending on the professor. (2 or 5 units) NCX

197. Special Topics in Environmental Science

Course content and topics vary depending on the professor. (2 or 5 units) NCX

198. Environmental Proseminar

A seminar course for graduating seniors, intended to permit reflection on an internship or research experience and foster the further development of professional skills. Prior to enrolling, students must complete 100 hours of work in one of the following options: 1) an approved off-campus environmental internship (see ESI executive director for approval before initiating the internship), 2) approved environmental research with SCU faculty (ENVS 195, ENVS 199A, or 199B) or as part of a study abroad program, or 3) the Environmental Vocation Internship (ENVS 199C). Unit credit dependent on prior credits granted for internship or research work. Students are graded P/NP only. *Prerequisites: Completion of 100 hours of internship or research and senior class standing.* (1–5 units) NCX

199. Directed Reading, Research, or Internship

Students wishing to enroll in 199A, 199B, or 199C should meet with the faculty supervisor no later than the fifth week of the term preceding the start of the project. For 199A and 199B a written description of the proposed project must be presented to the ESI executive director for approval.
(1–5 units) NCX

199A. Directed Reading in Environmental Science or Environmental Studies

Detailed investigation based on directed readings on advanced environmental topics, under the close supervision of a faculty member. *Prerequisite: Permission of ESI executive director and instructor before registration.* (1–5 units) NCX

199B. Directed Environmental Research

Supervised laboratory, field, or other research under the guidance of a faculty member. The goal should be a written report suitable for publication. *Prerequisite: Permission of ESI executive director and instructor before registration.* (1–5 units) NCX

199D. Interdisciplinary Research in Environmental Studies

This course provides an overview of disciplinary approaches to environmental research and ways of integrating different types of research in interdisciplinary ways. Discussions will focus on the philosophy of science, methods for data collection, and different types of methods including field, lab, and social science methods. *The course will be open to research students of faculty participating in the Undergraduate Research Initiative and to SLURP students.* Students are graded P/NP only. (1–5 units) NCX

ETHNIC STUDIES PROGRAM

Associate Professors: Ramón D. Chacón, James S. Lai *(Program Director)*
Assistant Professors: Perlita Dicochea, Robin Hayes

The Ethnic Studies Program provides a critical analysis of historical and contemporary formations of race, ethnicity, class, and gender. In the pursuit of social justice, it challenges dominant views of racial and ethnic groups that lead to inequalities. Ethnic studies focuses on the roles and experiences of African Americans, Asian/Pacific Islander Americans, Latinas/Latinos, Native Americans, and other racialized peoples within the framework of the United States and within transnational frameworks.

As an academic program, ethnic studies fosters interdisciplinary inquiry. The faculty comprise a community of scholars of critical race and ethnic studies, while serving as teachers, mentors, and role models for undergraduate students. Ethnic studies strives to make connections between University learning, racial and ethnic communities, and social change and encourages a reflective engagement with society and a commitment to fashioning a more humane and just world. The Ethnic Studies Program serves as a resource for students, faculty, and staff across the University who are interested in issues of race and ethnicity. The program offers a minor in ethnic studies.

The ethnic studies minor complements a student's major by broadening the field of study to include an academic focus on race/ethnicity. It enhances a student's employment opportunities in business, education, law, medicine, social work, and government. The minor provides a foundation for graduate studies for students who plan to become university professors and researchers with a specialization in ethnic studies.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in ethnic studies:

- ETHN 5
- Two courses from ETHN 10, 20, 30, 40
- Three upper-division courses in an area of specialization (i.e., African American studies, Asian American studies, Chicana/Chicano studies, or comparative ethnic studies)
- ETHN 198 or 199

Departmental Courses Applicable to the Minor

Note: For descriptions, see the listings of the relevant departments. Students should consult with the director of the Ethnic Studies Program to determine the applicability of courses taken at other institutions or in study abroad programs.

- ANTH 86, 90, 146
- ARTH 141
- COMM 121A, 127A
- ECON 155
- EDUC 106
- ENGL 35, 36, 37, 38, 39, 69, 130, 134G, 139, 140, 155, 158, 166

- HIST 104, 180
- MUSC 20, 62/162
- SPAN 133
- POLI 153, 185
- PSYC 189
- RSOC 91, 164, 184
- SOCI 132, 150, 153, 175, 190
- THTR 14, 15, 65, 161, 189

LOWER-DIVISION COURSES

5. Introduction to the Study of Race and Ethnicity in the United States

Focuses on immigration and intercultural race relations for the major cultures of color in the United States: African American, Asian American, Latina/o, and Native American. Discussion of each group historically in relationship to each other and the dominant culture. Through critical readings, class discussion, and film, students will have opportunity to develop a solid intercultural foundation to the understanding of race and cultural diversity in United States. Course is a basis for classes offered by all faculty in the Ethnic Studies Program particularly the introductory level courses. The course also serves as an introduction to the minor in the Ethnic Studies Program. (4 units)

10. Introduction to Native American Studies

Multidisciplinary course addressing key issues regarding identity and definition among indigenous peoples in the United States. How members of each group view themselves; how they are defined by others; how interactions between the different cultures influence one another. (4 units)

20. Introduction to Chicana/Chicano Studies

Survey course in Chicana/Chicano studies addressing key issues in Chicana/o communities in the United States. Focuses on such issues as immigration, culture, family, family and kinship, identity, gender roles, religion, education, politics, and labor force participation. (4 units)

30. Introduction to African American Studies

Students will engage in major debates about the history, politics, and cultures of communities of African descent living in the United States. Students will examine texts at the cutting edge of interdisciplinary scholarship in African American studies in order to explore the key themes of origins, power, community, identity, and expression that are central to understanding race-related issues. In addition, students will create innovative research projects to help develop positions about the ideology of race, the dynamics of group consciousness, and the significance of collective action, self-determination and aesthetics to the African American experience. (4 units)

31. Introduction to African American Art

Also listed as ARTH 46. For course description see ARTH 46. (4 units)

40. Introduction to Asian American Studies

Multidisciplinary survey of Asian Americans. Asian cultural heritage, immigration, and the formation of Asian American communities. World views and values, religious

beliefs, family and kinship, language. Contemporary community issues of identity, sex roles, stereotyping, employment, and education. (4 units)

50. Introduction to Filipino American Studies

Mainstream representations of the Filipino American community. Twentieth-century works written by and about Filipino Americans, with an emphasis on four relevant themes: the legacy of Spanish Colonialism and American Imperialism; U.S. politics and the history of Filipino American activism and resistance; problems of identity as it relates to class, gender/sexuality, mixed heritages, and generational differences; and Filipino Americans and popular culture. (4 units)

55. Cross-Racial Electoral Politics

Examination of the historical and contemporary political movements among the major minority groups in the United States since the 1960s. The origins and goals of the Black Power movement, the Chicano/a movement, the Asian American movement, and the Native American movement will be focused on during the quarter. Each of these movements embodies similar and different trails with regard to their respective group's quest for political power and elected representation. Due to contemporary immigration trends, Latinos and Asian Americans have challenged the black-white paradigm that has traditionally defined U.S. racial politics in local and state level politics. The result, in some instances, has been interracial competition and conflict at these levels. The necessary elements needed to build and to sustain multiracial coalitions along with what the political future holds for these minority groups will be addressed. (4 units)

96. Race, Class, and Culture Through Film

Explores how filmmakers who are concerned about racism portray the politics, history, and culture of people of African descent. Examines how this medium can humanize subjects who are often objectified and exploited and give voice to communities whose perspectives and opinions have been historically excluded from mainstream discourses. Considers how films can interrogate the physical, cultural, and, sometimes, psychological brutality of racist practices as well as the ways that racism intersects with other forms of marginalization related to class, gender, sexuality, and citizenship. The content, production, and distribution of these cinematic portraits illuminate the political philosophies, hybrid cultures, and emancipating collective action of black communities. Integrates students in faculty research by involving students in a documentary film project about the relationship between the social movements for African liberation and black power. (4 units)

UPPER-DIVISION COURSES

112. Native Peoples of the United States and Mexico

Examination of the national policies, ideologies, and attitudes that have shaped the lives of indigenous peoples living along the U.S.-Mexico border. Issues include cultural survival, cultural change, national and individual identity, gender relations, legal and political problems, and intercultural relations. (5 units)

120. Mexican Immigration to the United States

Examination of the process of Mexican immigration to the United States since 1910 with a focus on the role of Mexican immigrant labor in California agribusiness. An analysis of reasons for Mexican immigration and the responses of the United States to such immigration. Special focus on Mexican farm laborers, the various movements to organize them, and on Cesar Chavez and the UFW. (5 units)

121. Chicana/Chicano Families and Gender Roles

An examination of Chicana/Chicano families in the United States. Addresses two general areas in family research: (1) the historical development of Mexican immigrant families and subsequent generations of communities and families of Mexican Americans, and (2) a life-cycle analysis of families with a specialized focus on gender roles and relations. (5 units)

122. Chicana/Chicano Communities

Examination of the development of the social, cultural, political, and economic structures that shape Chicana/Chicano communities in the United States. Themes include the evolution of barrios, the historical and contemporary impact of Mexican land grants, ghettoization, education, gangs, employment, and the political economy. (5 units)

125. Latinas/os in the United States

Examination of the experience of Latinas/os in the United States, focusing on people of Mexican, Central American (El Salvador, Guatemala, and Nicaragua), and Caribbean (Puerto Rico, Cuba, and the Dominican Republic) descent. The countries of origin, immigration, settlement patterns, comparative issues, and the condition of Latinas/os in the United States will be explained. Course content addresses both historical and contemporary issues. (5 units)

130. Black Political Thought in Action

Exploration of the political theories and praxis of social movements in the black diaspora through the lens of memoir. Beginning with the slave narrative genre, autobiographies of activists of African descent have served as important tools for organizing support for social movements, providing historical evidence of the experiences of black communities, and challenging domestic and international policies that affect people of color. In addition, memoirs have provided an alternative space for black voices to be heard when they have been excluded or ignored by academic, media, and political institutions. Examination of social movements in the African diaspora through the life stories of activists. Students will observe how these texts reveal concerns about the meaning of autonomy, freedom, justice, and collective consciousness that are common to historically marginalized groups. Students will consider how personal experiences of race, class, gender, sexuality, and citizenship influence various forms of political participation. Students will interrogate the subjectivity and distortion of fact that are often found in even the most well-intentioned memoirs. (5 units)

134. Black Social Movements

Black social movements consistently challenge the marginalization of communities of African descent. In the process of contesting the legitimacy and consequences of physical terror, economic exploitation, and cultural misappropriation endured by their communities, social movements throughout the African diaspora have created many of the philosophies, repertoires of collective action, and aesthetic traditions that lay at the core of our understanding, and imagination, of black life and political dissent. Students will closely examine the work of two historical social movements in the African diaspora, Black Power and African Liberation, which envisioned freedom, justice, and self-determination for black communities. Students will learn about the ideas, tactics, and legacies of these movements by conducting interviews with Black Power and African Liberation activists. In addition, students will evaluate the work of black social movements that are currently organizing in their communities. Through research, readings, and class discussions, students will interrogate both the iconography and vilification of black social movements and their impact on race and politics in the present day. (5 units)

139. African American Psychology

Also listed as PSYC 189. For course description see PSYC 189. (5 units)

141. Asian American Women

An examination of Asian American women from a historical and contemporary framework within U.S. society. Focuses on the struggle for identity and adjustment in the first generation and the conflicts with subsequent generations of Asian American women. Analyzes two major themes: (1) the interplay of gender identity formation and conflict, both in the family and in the paid labor force, and (2) the development of individual and collective survival strategies. (5 units)

142. Asian American Communities

An examination of selected topics affecting Asian Americans in the United States. Issues include the changing nature of communities, community institutions, anti-Asian violence, occupational glass ceilings, higher education, political mobilization, gender relations, identity formation, and the new patterns of Asian immigration. (5 units)

150. Racial/Ethnic Writers in Comparative Perspective

An examination of the expression of race and ethnicity in the writings of African Americans, Asian Americans, Native Americans, and Chicanas/os. Themes include the racial/ethnic/gender/class representation of self, identity, culture, and community in U.S. society. Focus on the interrelationship between literature and literary criticism and the sociohistorical context within which it is produced. (5 units)

151. Educating Linguistic and Cultural Minority Students

This course will prepare students who are interested in teaching to work with cultural and linguistic minority students. We will consider the ways in which different groups socialize children for learning and how learning patterns acquired in the home can conflict with the culture of school. Students will consider instructional approaches for working with diverse populations in their classrooms. (5 units)

154. Women of Color in the U.S.

This course will explore the historical and present-day issues for women of color in the U.S. inclusive but not limited to key topics such as sexuality, family, work, media, and activism. We will examine the impact of racism, sexism, and classism on African American, Asian American, Latina, Native, and white American women in the U.S. Using an interdisciplinary approach, we will also investigate their shared experiences as well as their differences. (5 units)

155. Racism in the United States

Multidisciplinary study of racism in the United States. Its historical manifestations from the arrival of Europeans in North America to contemporary times; its psychological dimensions (prejudice, stereotypes, discrimination); and its place in the U.S. political economy. Emphasis on African Americans, but includes discussion of Native Americans, Chicanos/as, and Asian Americans. (5 units)

156. Environmental Racism, Gender, and Justice

This course will examine the relationships between racial formation, gender, and class within the context of environmental problems and the distribution of resources. The course will also consider activities that may lead to a more equitable distribution of the costs and benefits of economic development, more sustainable forms of production, and economic dynamics that influence public health discrepancies by gender and race. While this course focuses on communities of color in the U.S., it also addresses binational and global instances of environmental injustice. (5 units)

159. Historical Perspectives in Hip Hop Culture

This course will examine the history and development of hip-hop culture, paying special attention to its social, cultural, racial, and political dimensions. We will probe the origins of hip-hop culture, deliberate its political crisis and racial conflict, and chart its evolution as a form of collective self-expression among urban youth. The course will explore four fundamental elements: rap music, politics, gender, and globalization. (5 units)

197. Special Topics in Ethnic Studies

(1–5 units)

198. Internship

(2–5 units)

199. Directed Reading/ Directed Research or Internship

A Capstone senior project representing a student's specialization in ethnic studies. *Prerequisite: Written approval by the director of the Ethnic Studies Program prior to registration.* (2–5 units)

DEPARTMENT OF HISTORY

Professors Emeriti: Dorothea French, Steven Gelber, Mary McDougall Gordon, Jo Burr Margadant, Peter O'M. Pierson, Sita Anantha Raman
Professors: Gerald McKevitt, S.J. *(Ignacio Ellacuria, S.J., University Professorship for Jesuit Studies),* Barbara Molony *(Department Chair),* Timothy J. O'Keefe, Robert M. Senkewicz, David E. Skinner
Associate Professors: Ramón D. Chacón, George F. Giacomini Jr., Arthur F. Liebscher, S.J., Thomas Turley, Nancy Unger
Assistant Professors: Fabio López-Lázaro, Pedro Machado, Paul P. Mariana, S.J., Matthew Newsom Kerr, Amy E. Randall

History provides an understanding of all aspects of the human past. By synthesizing the humanities and social sciences, the study of history imparts the ability to research, analyze, and communicate the reasons humanity has developed in particular ways. Knowledge and skills developed in history are excellent preparation for graduate study and careers in education, communications, government, law, and business.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in history must complete the following departmental requirements:

- One history course in at least five of these seven geographical areas: Africa, East Asia, South Asia/Indian Ocean, West Africa/Middle East, Europe, Latin America, and United States
- Four lower-division courses in three of the seven geographical areas mentioned above, at least one of which must be in the student's area of projected individual specialization. Up to two Cultures and Ideas I and II courses taught by history department faculty may be used to partially fulfill these requirements

- Ten upper-division courses, including:

  HIST 100 and HIST 101

  One global course from the following: HIST 102, 103, 104, 105, 106, 107, 112, 115, 116

  Four courses in the student's area of specialization

  Two elective history courses

  HIST 197 (capstone)

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in history:

- Seven history department courses, including four upper-division courses

PREPARATION IN SOCIAL SCIENCES FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that persons seeking a credential to teach history in California schools hold a single-subject teaching credential in social science authorizing them to teach history and social science classes in departmentalized settings. Students wishing to enroll in a credential program must pass a subject-area examination in social science. The teaching credential program itself requires the completion of an approved credential program, which can be completed as a fifth year of study with student teaching, or through a summer program and internship in conjunction with the undergraduate pre-teaching program.

The Department of History offers a program that prepares students for the subject-area examination and admission to a credential program. As part of this program, students are also encouraged to minor in urban education. Students who are contemplating secondary school teaching in social science should consult with the program coordinator in the Department of History as soon as possible.

LOWER-DIVISION COURSES: CULTURES AND IDEAS

11A. and 12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address civilization and the city; explorations, migrations, and nations; empires and rights; slavery and unfreedom; and other topics. (4 units each quarter)

REQUIRED UPPER-DIVISION COURSES

100. Historical Interpretation

An investigation of the diverse methods historians use to examine the past. Required of all majors as a prerequisite for HIST 197. (Satisfies a European requirement for the major.) *For history majors or with permission of the instructor.* (5 units)

101. Historical Writing

Researching and writing history papers. Required of all majors as a prerequisite for HIST 197. (Satisfies a United States requirement for the major.) For history majors only. *Recommended to be taken in the sophomore or junior year.* (5 units)

197. Capstone Seminar

A topical course designed to give seniors the opportunity to write an in-depth original research paper under the guidance of the seminar instructor and a faculty specialist chosen by the student. For senior history majors only. *Prerequisites: Successful completion of HIST 100 and HIST 101.* (5 units)

UPPER-DIVISION COURSES: GLOBAL HISTORY

102. Ethnic Cleansing and Genocide in the 20th Century

This course will explore the mass murder of populations defined by ethnicity, nationality, and race in the 20th century. (5 units)

103. Encounter with the Other: the Jesuits in World History

Interdisciplinary course that examines the global evolution of the Society of Jesus (the Jesuits) from the order's founding in the Age of Discovery to the present day. Themes include Ignatian spirituality, development of the order's worldwide educational system, the Jesuit role in the encounter between European culture and the cultures of Asia and the Americas, and the new orientations of the order that emerged in Catholicism and the world at large in our own day. (5 units)

104. World History Until 1492

An overview of the great civilizations of the world prior to the Columbian Exchange, focusing on the geographical, cultural, economic, and political features of the complex societies in East Asia, Southeast Asia, South Asia, Africa, the Middle East, Europe, the Americas, and Oceania. Survey of the foundations of each region. Patterns of connection and interdependence in world history. (5 units)

105. Modern World History

Examination of the significant events, relationships, and ideas that have shaped the development of a transformed international system during the past 300 years. Focus is on a few themes, rather than a chronological survey of different regions or cultures. Major themes include the scientific and industrial revolutions, new technologies, nationalism and imperialism, effects of new technologies, anticolonialism and neo-imperialism, the new world disorder. (5 units)

106. A World History of Foods, Drugs, and Medicines

An analysis of the human use of plants as sustenance, mood enhancers, and health agents with particular attention to the Neolithic invention of agriculture, its spread through monumental civilizations, and the capitalistic globalization of food cultures since 1500 caused by imperialism and industrialization (e.g., fast food and national cuisines). Specific theories to be examined include J. Diamond's interpretation of agriculture as an element in the differential evolution of human societies, historians' emphasis on the role sugar played in the development of African slavery, and contemporary concerns about the ecological and health shortcomings of agribusiness. (5 units)

107. Spain and Morocco: Jews, Christians, and Muslims, 1300-1800

A study of how Spain and North Africa's histories were intertwined between the Muslim conquest (689-711) and the Christian monarchy's expulsion of Jews from Spain in 1492 and of Muslims in 1609. This course examines the medieval cultural, social, and political co-existence of Jews, Christians, and Muslims, a phenomenon known as *convivencia,* and explores why it ended. (5 units)

112. Connected Histories/Globalism

An exploration of the "archaeology" of globalization through an examination of the ways in which parts of the world have

become connected over the past 700 years. It adopts a thematic approach to questions about when the process we call globalization began and how it has unfolded in different economic, social, cultural, and political spheres, and problematizes the concept of globalization and the idea that connectivity of the world today is a radical departure from earlier periods. (5 units)

115. Gender, Race, and Citizenship in the Modern World

An examination of the dynamics of contestation and reform that shaped the politics of gender and racial equality in the modern world. (5 units)

116. Sex and Gender in the Era of High Imperialism

An examination of the role of sexuality and gender in the global expansion of European hegemony in the 19th and 20th centuries. (5 units)

199. Directed Reading/ Directed Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in world and comparative history. *Prerequisite: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: UNITED STATES HISTORY

84. Women in American Society

Examination of the rich history of the changing social, economic, political, and intellectual life of women in the United States. Focuses on issues of gender, race, class, geographic setting, and ethnicity. Primary and secondary sources will be used to examine women's self-conceptions and self-identifications, as well as gender constructs and prescribed roles. (4 units)

85. Introduction to United States Environmental History

Study of American environmental history from the pre-Columbian period to the present. Examines the interactions in history between the physical environment and economics, politics, gender, race, ethnicity, and religions. (4 units)

96A. Introduction to the History of the United States I

A survey of the history of the United States from European colonization to Reconstruction. Political, economic, social, and intellectual aspects of America's first 250 years. (4 units)

96B. Introduction to the History of the United States II

A survey of the history of the United States from Reconstruction to the present. Political, economic, social, and intellectual aspects of America in an era of industrialization, international involvement, and domestic change. (4 units)

UPPER-DIVISION COURSES: UNITED STATES HISTORY

170. Revolution, Confederation, Constitution

Intensive study of the origins, progress, and culmination of the American Revolution to 1800. (5 units)

171. The New Nation

Social and political reforms, expansion, and changes, sectional and national politics of the United States between 1800 and 1850. (5 units)

172. The Union in Crisis

A study of the major aspects of the antebellum period, the Civil War, and the problems of Reconstruction: the abolitionists, the rise of the Republican Party, the conduct of the war, the role of the free African American, constitutional readjustment, and the rise of the new South. (5 units)

173. The Modern Era: 1920–1960

The end of the Republican ascendance in the 1920s and the rise of the New Deal coalition. America at war again and the Cold War at home and abroad. (5 units)

174. America in the 1960s

Little Rock to Watergate: social, political, and foreign policy upheavals of the 1960s. Civil rights movement, student and antiwar movements, hippies, and others. Kennedy and Johnson, end of the Cold War and the Vietnam War, Nixon and Watergate. (5 units)

175. 20th-Century United States Diplomatic History

Critical study of U.S. international relations. Economic, political, social, and public opinion forces influencing the development of U.S. policy. (5 units)

176. U.S. Military History

Survey of the international, military, political, and economic aspects of the American involvement in conflicts from the Anglo-Indian Wars of the 18th century to the present. The course assesses the relationship between civilian and military authorities, qualities of leadership, the impact of new technology, and the evolution of tactics. *Also listed as MILS 176.* (5 units)

177. Gays and Lesbians in United States History

Examination of the significance of gay men and lesbians across the broad sweep of American history, beginning with pre-Columbian Native Americans and concluding with the modern era. Religious, intellectual, economic, political, and social ramifications will all be examined. (5 units)

180. Native Americans of the United States

Native American history from colonial times to the present from the perspective of native peoples. The focus is on selected Indian peoples in each historical period with an emphasis on native responses to changing historical circumstances, the continuity of Native American cultures, and Indian relations with the U.S. government in the 19th and 20th centuries. Topics include colonialism, Native Americans and environments, regional and tribal histories. (5 units)

181. United States Women Since 1900

Examination of the rich history of the changing social, economic, political, and intellectual life of American women from 1900. Issues of gender, race, class, geographic setting, and ethnicity will merit appropriate attention. Primary and secondary sources used to examine women's self-conceptions and self-identifications, as well as gender constructs and prescribed roles. Women's role in the Gilded Age, the Progressive Era, WWI, the Depression, and WWII will be followed by extensive coverage of the transitions created/endured by American women from the post-war period to today including the rise of feminism and its ongoing challenges. (5 units)

182. Sex and Family in American History

History of sex and the family from the 17th to the 20th century. Impact of social and economic change on sexuality, courtship, marriage, and child rearing. Cultural construction of gender roles and sexual roles. (5 units)

184. American Historical Geography

Introduction to the physical and cultural geography of the United States with a special emphasis on California. Texts, maps, and

discussions used to explore how America's geography is not just the stage for American history but an integral player in that history. (5 units)

186. California

Survey of the state's history: its Native American origins, Spanish invasion and missionization, Mexican period, U.S. conquest, gold rush, and development to the present. (5 units)

187. The American West

A study of the American West as frontier and region in transit from the Atlantic seaboard to the Pacific coast from the 17th century to the present with an emphasis on the 19th-century trans-Mississippi frontier. Topics include European invasions of the aboriginal world; exploration; the fur trade; mining and farming frontier; ethnicity and gender in multicultural regions; the West in film, fiction, and art; contemporary meaning of the West. (5 units)

188. Seminar: The U.S. Progressive Era

The progressives (1880s-1920) struggled to more equitably redistribute the wealth and power of the newly industrialized, urbanized America, achieving mixed results. The impact of this crucial period of reform on politics, gender, class, business, the environment, leisure, and foreign affairs will be examined in order to illuminate current political and social views and actions. Students are evaluated on their informed participation and a research paper. (5 units)

189. Special Topics in United States History

Courses offered occasionally on subjects outside the standard curriculum in modern United States history. (5 units)

194. Seminar in United States History

Original research and group discussions of selected problems and periods. (5 units)

199. Directed Reading/ Directed Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in U.S. history. *Prerequisite: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: EUROPEAN HISTORY

21. Western Civilization: Ancient

Interdisciplinary survey of the development of Western culture from the Near Eastern origins of Western civilization through the collapse of the Roman Empire. *Formerly HIST 11. Also listed as CLAS 62.* (4 units)

22. Western Civilization: Medieval and Early Modern

Interdisciplinary survey of the development of Western culture from the fall of the Roman Empire through the 17th century. *Formerly HIST 12.* (4 units)

23. Western Civilization: Modern

Interdisciplinary survey of the development of Western culture from the 17th century to the present. *Formerly HIST 13.* (4 units)

16. Ancient Greek Religion

Also listed as CLAS 67. For course description see CLAS 67. (4 units)

17. Ancient Roman Religion

Also listed as CLAS 68. For course description see CLAS 68. (4 units)

94. Introduction to the History of Europe

An introduction to the study of the history of Europe. (4 units)

UPPER-DIVISION COURSES: EUROPEAN HISTORY

108. Ancient Greece

Also listed as CLAS 108. For course description see CLAS 108. (5 units)

109. The Hellenistic Age

Also listed as CLAS 109. For course description see CLAS 109. (5 units)

110. Roman Republic

Also listed as CLAS 110. For course description see CLAS 110. (5 units)

111. Roman Empire

Also listed as CLAS 111. For course description see CLAS 111. (5 units)

113. Family in Antiquity

Also listed as CLAS 187. For course description see CLAS 187. (5 units)

114. Imperialism and Religion: Roman Britain

Also listed as CLAS 114. For course description see CLAS 114. (5 units)

117. State and Church in the Middle Ages, 1000–1450

The struggles between state and church that formed modern Western political institutions. The rise of royal and papal theocracy, the emergence of the idea of limited government, the foundation of representative institutions and modern legal institutions, the origins of the modern state. (5 units)

119. Sex, Family, and Crime in Mediterranean Europe, 1300-1800

This course explores the historical intersection of the law—particularly criminal law—with gender and family in medieval and early modern Mediterranean societies. The focus is on Spain, Italy, and the Ottoman Empire, but comparisons are made with Anglo-American legal traditions. It examines how family, sex, and gender were regulated and how the state's authority was increased as it began to "police" behavior at a time when the theory of individual rights was developing. Topics include the history of marriage, the medieval Inquisition, the early modern "witch craze," and the real—as opposed to the mythic—harem. (5 units)

120. Churchill's England

A study of modern English history through the extraordinary career of Winston Churchill. Britain's imperial zenith, the English suffragettes, international rivalries and World War I, the Anglo-Irish conflict, British inter-war appeasement of Nazi Germany, World War II, the formation of the English welfare state. (5 units)

121. Interpreting the English Reformation

A study of the religious changes in 16th-century England from the accession of Henry VIII to the Gunpowder Plot. Evaluation of traditional Medieval patterns of belief and worship, Tudor dynastic necessities and political ambitions and factions, the influence of continental theological reformation, and popular acceptance or rejection of religious innovations. (5 units)

122. Pirates of the Mediterranean, Pirates of the Caribbean 1300-1800

An examination of the history of piracy in the late Medieval Mediterranean and early modern Atlantic contexts. Original narratives, including eyewitness accounts, and recent scholarship are placed within a larger context of how societies in these regions have communicated and clashed with each other. Discussions focus on examining Mediterranean piracy in relation to Christian and Muslim interaction and delineating Atlantic piracy's affiliation with the birth of

global Western imperialism and the development of an early modern "alternative pirate society." (5 units)

124. Diplomacy and War: Europe 1870-1939

Relations of major European powers since 1870. Emphasis on economic, political, and social forces that influenced these relations. (5 units)

126. Conflicts in Medieval Christianity

An examination of the religious tensions and conflicts that helped form later Medieval Christianity. Treats heresies, developing notions of orthodoxy and authority, the warrior Christianity of the Crusades, mendicancy and urban attitudes toward Christian perfection, the new monasticism, the development of a personal religion, lay tensions with the clergy, the inquisition, the climate of reformation. (5 units)

127. The World of St. Francis

An examination of the religious, social, and economic background that produced Francis of Assisi, one of the most revolutionary figures of the late Middle Ages. It will focus on shifts in religious perception and new notions of religious perfection gaining popularity in Francis' time, Francis' personal motivations, and the struggle the Medieval church experienced attempting to integrate Francis and his followers into its structure. (5 units)

130. France and the World: Human Rights in Theory and Practice

An exploration of the invention of the concept of universal human rights in the Enlightenment and French Revolution and its contested application in France and the French Empire from 1789 to the present. Topics include controversies over the rights of women, Jews, non-white colonial subjects, immigrant families, and Muslim citizens. (5 units)

133. History of Sexuality

Study of the history of sexuality in modern Europe. Examination of topics such as the politics of prostitution, abortion, and pornography; changing sexual norms and practices; the invention of homosexuality and heterosexuality; the social construction of sexual identities; professional and state involvement in the supervision and regulation of sexualities; intersections of sexuality with gender, ethnicity and race, nationality, class, and religion; connections between sexuality and imperialism, nationalism, economics, politics, and culture; sexual communities and movements. (5 units)

134. Reformers and Revolutionaries in Tsarist Russia

Examination of politics, society, and culture in the Russian Empire from the reign of Peter the Great to the fall of the Romanov Dynasty in 1917. Themes include state building and modernization; peasant rebellion and the institution of serfdom; the nobility and its discontents; imperial expansion and the multiethnic Empire; the Orthodox Church and popular religion; aristocratic revolt and the Russian revolutionary intelligentsia; Alexander II and the Great Reforms; the growth of radicalism; industrialization and social change; the Revolution of 1905; and the crisis of the Old Regime. (5 units)

135. Women and Gender in Modern Europe

An exploration of the history of modern Europe through the lens of gender. Focus on how changing ideas about gender and sexuality shaped gender roles, cultural practices, economic systems, and politics from the French Revolution to the end of the Cold War. Also considers the ways in which gender interacted with class, ethnicity, nationality, sexual identity, and race in the everyday lives of men and women. (5 units)

136. Gender/Race/Class in 20th-Century Europe

An exploration of the ways that social anxieties and ideas about gender, race, nationality, class, and sexuality shaped political, economic, social, and cultural developments in Europe from 1900 to the present. Topics include: challenges to bourgeois society in pre-war Europe; World War I; gender and sexual "disorder" in the 1920s; fascism and sexuality; WWII and the Holocaust; cultural constructions of the Cold War; the intersections of class, gender, and consumption; the politics of decolonization; the 1968 revolutions in Western Europe and Eastern Europe; the women's movements in the 1970s; masculine identity in a post-industrial world; the gendering of Communism; "new Europeans," European unity, and nationalism in post-colonial, post-Communist Europe. (5 units)

137. The Soviet Experiment

An examination of the Soviet experiment to build the first self-proclaimed socialist government in history. Emphasis on political and economic policies, cultural practices, everyday life, and the evolution of social identities and roles, taking into account gender, regional, and national differences. (5 units)

138. Second World War

An intensive investigation of the international military conflict of 1939-1945. Examination of the causes of the war and the major campaigns in Europe, North Africa, and the Pacific. The domestic consequences of the war, and the impact of the conflict on the lives of subject populations, soldiers, and ordinary civilians. (5 units)

139. Special Topics in European History

Courses offered occasionally on subjects outside the standard curriculum in modern Europe. (5 units)

192. Seminar in European History

Original research and group discussions of selected problems and periods. (5 units)

199. Directed Reading/ Directed Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in European history. *Prerequisite: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: AFRICAN, WEST ASIAN, MIDDLE EASTERN HISTORY

91. Introduction to the History of Africa

Historical survey of the origins and development of African cultures from ancient times to the onset of European colonialism in the 20th century. Focus on selected civilizations and societies. Patterns of African social, economic, and political life. (4 units)

97. Introduction to the History of West Asia and the Middle East

A survey of the cultural, religious, economic, and political development of western Asia and northeastern Africa up to 1900 CE. (4 units)

UPPER-DIVISION COURSES: AFRICAN, WEST ASIAN, MIDDLE EASTERN HISTORY

141. Independent Africa

African economic, social, and political problems after independence. Major ideologies and international conflict. (5 units)

142. Modern Middle East and North Africa

An examination of the political, economic, and religious forces that helped to shape the contemporary nation-state system of western Asia and northern Africa. Analysis of the consequences of European expansion and colonialism, Zionism, Arab nationalism, and pan-Arabism and the development of political Islam in both regional and global affairs. (5 units)

143. Seminar: Women in Political Revolutions

Comparative, global history seminar that focuses on the political, economic, social, and military leadership of women in several types of revolutionary movements, both violent and nonviolent. Examples are taken from many cultures around the world from the 19th to the 21st centuries. (5 units)

144. Islam in Africa

Examination of the history and contemporary role of Islam in Africa. The principal topics are the development of Islamic ideas and institutions, the impact of Islam on African cultures, the role of Islam in contemporary political and economic development, and the interaction between African and non-African organizations and governments. (5 units)

145. Islam in the Modern World

Comparative study of contemporary Islam. The study of origins and basic doctrines of Islam and its development in the modern world. Main focus will be on Islam's interaction with different cultures, emphasizing political implications of the rise of revivalism. (5 units)

149. Special Topics in African History

Courses offered occasionally on subjects outside the standard curriculum in African history. (5 units)

193. Seminar in Africa and Middle East

Original research and group discussion of selected problems and periods. (5 units)

199. Directed Reading/ Directed Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in African history. *Prerequisites: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: EAST ASIAN, SOUTH ASIAN, AND INDIAN OCEAN HISTORY

55. Introduction to Southeast Asia

Historical survey of the civilizations of Malaysia, Indonesia, Burma, Thailand, Cambodia, Laos, Vietnam, and the Philippines from their origins to the present day. The focus will be on societies, cultures, religions, colonialism, nationalism, and postmodern socioeconomic issues. (4 units)

92. Introduction to the History of East Asia

An examination of the emergence of modern nations from the rich and diverse cultures of the Pacific and their mutual transformations in the past century. Analyzes linkages within the region and with other regions using concepts borrowed from anthropology, cultural studies, economics, and political science. (4 units)

93. Introduction to the History of South Asia and the Indian Ocean

A survey of the dynamic development of India, Pakistan, Bangladesh, Nepal, and Sri Lanka and the Indian Ocean. Using multidisciplinary concepts, the course focuses on the subcontinent's rich and unique mosaic of social, religious, cultural, economic, and environmental systems against the backdrop of dramatic political events. (4 units)

UPPER-DIVISION COURSES: EAST ASIAN, SOUTH ASIAN, AND INDIAN OCEAN HISTORY

146A. Medieval and Early Modern Japan

From the early medieval period through the middle of the 19th century, Japan developed as a blend of indigenous cultures, religions, and institutions and continental (Chinese and Korean) civilization and later European and American ideologies and imperialism. This course examines culture, ideas, religions, society/economy, and global interactions. (5 units)

146B. Modern Japan in the World

An examination of Japanese history in its global context since 1600, with emphases on its 19th century "economic miracle;" problems faced by a rapidly modernizing and globalizing society; questions of national security and imperialism; reconstructing gender, personhood, and rights of Japanese men and women at several key moments in "modern" society; social and political movements such as suffrage and labor; war and reconstruction; and diaspora, both of people and ideas. (5 units)

147A. Premodern China

Chinese civilization from the earliest times to the Western intrusion. Dominant historical and cultural patterns; evolution of Confucianism, Taoism, and Buddhism; development of political institutions; analysis of preindustrial economic experience; state-society relations. (5 units)

147B. Modern China

Social, political, economic, and cultural development from the 17th to the 20th centuries. State formation from monarchy to socialism, cultural history from Confucianism to individualism, issues of poverty and population. Intellectual and cultural changes and the roles of the West. Indigenous forces shaping China's modern evolution. (5 units)

150. Women in East Asia

The historical study of women is necessarily the historical study of gendered societies. While there are important linkages among China, Japan, and Korea—for example, shared religious traditions, the varied experiences of imperialism, the central role of women and the construction of gender in modernity, and the physical movement of women (and men) among the three countries—there are also significant differences. This course will explore changes over time in sexualities, work experiences, civic culture, the gendered state, and marriage and family in the three countries. (5 units)

151. Imperialism in East Asia

This course examines the cultural, social, political, and economic effects of imperialism in four countries in East Asia: China, Korea, the Philippines, and Vietnam. Imperialism took varied forms, depending on the interests of the imperialist country and the conditions in the country under imperialism. Readings will use both literary and historical sources. (5 units)

154A. Ancient, Classical, and Medieval India

India from its prehistoric roots to 1500, with a focus on both sacred and secular themes: the development of Hinduism,

Buddhism, Jainism, Islam, Sufism; social stratification through caste, gender, and ethnicity; trade and cultural expansion in Asia and the Indian Ocean world; religious and social syncretisms; state and kingship. (5 units)

154B. Modern India

India after the Portuguese arrival to the present. Themes include economic development and trade; imperialism; Hindu socioeconomic reform and its relevance to women and the caste system; Muslim awakening and modernization; Indian nationalism; Gandhi, Nehru and Jinnah; economic development and environment; national cohesion; and communalism. (5 units)

155. Cradle of Globalization: The Indian Ocean

The Indian Ocean encompasses a vast area (one-third of all the countries of the world, and one-third of the world's population) from Australia, to Southeast Asia, to South Asia, to the Arabian Peninsula, to the East African coast. This course explores the history of the people and societies of the world of the Indian Ocean—in particular, the western region that includes India, Arabia, and East Africa—emphasizing the interactions between regions and powers as well as trade, exchange, and the movement of peoples around the Indian Ocean from ancient to modern times. (5 units)

159. Special Topics in Asian History

Courses offered occasionally on subjects outside the standard curriculum in Asian history. (5 units)

195. Seminar in Asian History

Original research and group discussion of selected problems and periods. (5 units)

199. Directed Reading/ Directed Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in Asian history. *Prerequisites: Permission of department chair and instructor.* (5 units)

LOWER-DIVISION COURSES: LATIN AMERICAN HISTORY

64. Central America

Survey of Central America from independence to the present. Focus on three Central American countries: Nicaragua, Guatemala, and El Salvador. Emphasis on recent developments; social, economic, and political problems (militarism, dictatorship); and the nature of U.S. policy vis-à-vis Central America. (4 units)

95. Introduction to the History of Modern Latin America

A survey of the modern experience of the major nations of Latin America, with emphasis on economic and commercial relationships, populism, the international dimensions of authoritarianism, national self-determination, and the context of recent democratic movements. (4 units)

UPPER-DIVISION COURSES: LATIN AMERICAN HISTORY

161. Modern Mexico

Mexico since the Benito Juárez regime to the present. Emphasis on the Porfiriato, the 1910 Revolution and its institutionalization, and the development of the modern state. (5 units)

162. Argentina

An historical examination of the peoples, events, regional situations, and trans-oceanic relationships that have shaped Argentina and southern South America. (5 units)

163. Cuba and the Caribbean

A survey from the colonial period to the present of three Caribbean nations: Cuba, the Dominican Republic, and Puerto Rico. Emphasis on 20th century developments; social, economic, and political issues (dictatorship, revolution, social stratification); and the role of U.S. policy vis-à-vis Cuba and the Caribbean. (5 units)

164. Seminar: The Catholic Church in Latin America

Readings, discussion, and research focused on the historical place, social role, and religious significance of the Catholic Church in Latin America, with attention to church-state issues, liberation theology, and the impact of the Church in nations affected by development, globalization, and poverty. (5 units)

166. Latin America: Peoples, Empires and Nations

A survey of the comparative experience of the original migrants, European colonizers, and resulting juncture of cultures and histories from the initial settlement through the native empires, establishment of the European colonies, the Enlightenment, and the birth of new nations. (5 units)

169. Special Topics in Latin American History

Courses offered occasionally on subjects outside the standard curriculum in Latin American history. (5 units)

196. Seminar in Latin American History

Original research and group discussion of selected problems and periods. (5 units)

199. Directed Reading/ Directed Research

Directed reading and research in source materials and secondary works dealing with selected historical problems in world and comparative history. *Prerequisites: Permission of department chair and instructor.* (5 units)

INDIVIDUAL STUDIES PROGRAM

Director: Jean J. Pedersen

The individual studies major has been established to meet the needs of students who wish to design a course of studies with a multidisciplinary perspective.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts or Bachelor of Science degrees, students majoring in individual studies must complete the following departmental requirements:

- Be a full-time student at Santa Clara for at least one year
- Have fewer than 111 quarter units of academic work completed at the time of application
- Have a minimum 3.0 grade point average
- Submit a Petition for Admission to the Individual Studies Program director for review and approval. The petition should include:
- A clear, logical, and conceptually refined description of the proposed program
- A well-developed argument, supported by appropriate evidence, showing that no existing academic major can meet the student's educational objectives

- A plan of study listing courses, seminars, internships, etc., that meet the student's educational objectives and fulfill the requirements of the University Core Curriculum

LIBERAL STUDIES PROGRAM

Professors: Timothy C. Urdan, Eleanor W. Willemsen *(Interim Director)*
Associate Professor: Carol Giancarlo Gittens
Assistant Professor: Brett Johnson Solomon
Lecturer: Leslie Carson

The Liberal Studies Program offers a degree program leading to the Bachelor of Science in Liberal Studies. The liberal studies major is designed for undergraduates interested in a career in elementary school teaching or students seeking a broad background in the liberal arts and sciences. Completion of the liberal studies major prepares students broadly in the Arts and Sciences and provides background in subject matter taught in the elementary grades. The teaching credential itself requires the completion of an approved credential program, which can be completed as a fifth year of study. Information about the teacher credentialing process and preteaching advising is available to all Santa Clara students through the Liberal Studies Program Office.

The Liberal Studies Program was developed by a faculty committee representing the social sciences, mathematics, natural sciences, and the humanities in consultation with faculty from the Department of Education. The curriculum encourages critical thinking, sensitivity to human values and ethical principles, and a respect for and appreciation of diverse cultures. By learning how to learn and how to teach others, students in the Liberal Studies Program help prepare themselves and future generations to understand and cope with a challenging and ever-changing world.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in liberal studies must complete the following departmental requirements:

- ENGL 160
- EDUC 184
- MATH 44 and 45
- PHYS 19
- BIOL 19 or ENVS 131
- CHEM 19
- HIST 96A or 96B, 104, 105, and 184
- ANTH 3 or SOCI 1
- POLI 1
- Four units of music, theatre, or dance courses
- ARTS 100 or an approved substitution
- PSYC 2, 134, 185
- LBST 70, 75, 197
- EDUC 70, 106, 138, 198

LOWER-DIVISION COURSES

EDUC 70. Community Health Education

Seminar addresses current health issues, reviews a variety of health education instructional materials, and includes group activities to enhance knowledge of health issues. Designed to clear multiple and single-subject basic teaching credentials. (4 units)

LBST 70. Movement Education

Learn the movement concepts and skill themes central to any physical education program for children. Develop sound instructional approaches for teaching physical education, dance, and athletics and for creating kinesthetic lesson plans to teach all academic subjects. Exploration of developmentally appropriate themes and activities that foster the interaction of physical, social, cognitive, and motor learning and will learn movement analysis techniques. Teaching simulations and working with children. Movement lab included. (4 units)

LBST 75. Technology and Learning

Examination of the relationship between learning and technology to acquire and develop lifelong learning skills. Hands-on introduction to the computer, multimedia stations, and the Internet as learning tools and analysis of the impact of technology on society and learning. (4 units)

UPPER-DIVISION COURSES

EDUC 106. Urban Education and Multiculturalism

This course will survey some of the historical, cultural, economic, educational, moral, and political forces, which confront urban educators with a view toward understanding the impact of these forces on teaching and learning. Students in this course will be exposed to academic and community resources. They will be given an opportunity to become active members of an urban community, study theories of urban practice, and reflect on both. This course is designed for undergraduates who have sophomore standing or higher and are considering a career in teaching or a related field. Requires Arrupe placement. (5 units)

EDUC 138. Exceptional Child

Introduction to childhood mental retardation, learning disabilities, behavior disorders, communication (speech and language) disorders, hearing impairments, physical and health impairments, severe handicaps, and the gifted and talented. The impact of these differences in comparison with normal development. Visits to institutions that serve these children. (5 units)

EDUC 184. Introduction to Reading

This course provides an introduction to the developmental and learning processes involved when children become readers. Students will learn to develop and demonstrate instructional strategies that foster a holistic view of learning to read and write—to emphasize connections among all areas of the curriculum and the interrelatedness of knowledge and the mutually reinforcing skills of reading, writing, listening, speaking, viewing, and representing visually. (5 units)

EDUC 198A. Elementary Teaching Practicum and Social Foundations

Seminar and directed readings address field-related problems and issues, classroom dynamics and curriculum. *Required: 32 hours as a volunteer teacher aide in an elementary classroom.* (5 units)

EDUC 198B. Secondary Teaching Practicum and Social Foundations

Seminar and directed readings address field-related problems and issues, classroom dynamics and curriculum. *Required: 32 hours as a volunteer teacher aide in a secondary classroom.* (5 units)

LBST 134./PSYC 134. Psychology of Education

The role of educational psychology is to understand and improve educational practice through the study of learning and teaching. Students enrolled in this course will be exposed to a variety of topics that relate to the study of learning and teaching. Such topics include: cognitive development and language; personal, moral, and social development; learner differences and learner needs; culture and community; behavioral views of learning; motivation in learning and teaching; creating learning environments; and evaluation, measurement, and success. Students in this course will gain their knowledge in several contexts including readings, community-based learning, lecture, discussion, and group work. (5 units)

LBST 197. Senior Seminar

Integration of methodological and epistemological features distinctive to the humanities, social sciences, and physical sciences using collaborative research methods. Examination of an issue of concern to U.S. elementary and secondary education. *Open only to senior liberal studies majors, senior EFTP students, or senior urban education minors. Students enrolled in LBST 197 must have completed or be enrolled concurrently in EDUC 198A.* (5 units)

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Professor Emeritus: Paul R. Halmos
Professors: Gerald L. Alexanderson *(Michael and Elizabeth Valeriote Professor),* José Barría, Jean J. Pedersen, Edward F. Schaefer, Dennis C. Smolarski, S.J. *(Department Chair)*
Associate Professors: Glenn Appleby, Robert A. Bekes, Frank A. Farris, Leonard F. Klosinski, Tamsen McGinley, Daniel N. Ostrov, Richard A. Scott, Nicholas Q. Tran, Byron L. Walden
Assistant Professor: Aaron A. Diaz
Senior Lecturers: Laurie Poe, Peter Ross, Nedra Shunk

The Department of Mathematics and Computer Science offers major programs leading to the Bachelor of Science in Mathematics or the Bachelor of Science in Computer Science (Mathematics), as well as required and elective courses for students majoring in other fields. Either major may be pursued with any of three principal goals: preparation for graduate studies leading to advanced degrees in mathematics, computer science, statistics, operations research, or other fields; preparation for secondary school teaching of mathematics or computer science; or preparation for a research career in business, industry, or government. The major in mathematics may be taken with an emphasis in applied mathematics, financial mathematics, or mathematics education. The emphasis in mathematics education is designed to prepare majors to take the California Subject Examination for Teachers. The major in computer science may be taken with an emphasis in cryptography and security. Minors in mathematics or computer science are also available.

The Department of Mathematics and Computer Science maintains a program for the discovery, encouragement, and development of talent in mathematics or computer science among undergraduates. This program includes special sections, seminars, individual conferences, and directed study guided by selected faculty members. Students are also encouraged to participate actively in research projects directed by faculty.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in mathematics and computer science (mathematics) must complete the following departmental requirements for the respective degree:

Major in Mathematics

- CSCI 10 (or demonstrated equivalent proficiency in computer programming)
- MATH 11, 12, 13, 14, 22, 51, 52, and 53
- PHYS 31 and 32, with the associated laboratory section for PHYS 32. Students with a special interest in the application of mathematics in the social sciences or economics may substitute ECON 170 or 173 for PHYS 32. Students planning to teach in secondary schools may substitute, with approval of the department chair, PHYS 11 and 12 for PHYS 31 and 32.
- Seven approved upper-division courses in mathematics or computer science, one of which must be MATH 102 and at least one of which must be MATH 103, 111, or 176.

Students planning to undertake graduate studies in pure mathematics should plan to take MATH 105, 111, 112, 113, 153, and 154. Students planning to undertake graduate studies in applied mathematics should complete the emphasis in applied mathematics and take MATH 105, 144, 153, 154, and 155.

Emphasis in Applied Mathematics

Complete the requirements for a Bachelor of Science in Mathematics with the following specifications:

- MATH 102, 122, 123, 166, 176
- Two courses from MATH 144, 155, 165, 178, CSCI 164, or an approved alternative upper-division mathematics (but not computer science) course

Emphasis in Financial Mathematics

Complete the requirements for a Bachelor of Science degree in Mathematics with the following specifications and additions:

- MATH 102, 122, 123, 125, 144, 166
- BUSN 70
- ACTG 11, 12
- FNCE 121, 124

Emphasis in Mathematics Education

Complete the requirements for a Bachelor of Science degree in Mathematics with the following specifications and additions:

- MATH 101, 102, 111, 122, 123 (or 8), 170, 175 (or 178)
- EDUC 198B

Students are strongly recommended to complete the Urban Education minor.

Major in Computer Science (Mathematics)

- MATH 11, 12, 13, 14, 51, 52, 53
- CSCI 10, 60, 61
- PHYS 31 and 32 with the associated laboratory section for PHYS 32
- COEN 20, COEN (or ELEN) 21 and 21L
- CSCI 163 and one course from CSCI 161, 166, or 167
- Two upper-division courses from the following list and two approved upper-division courses not on the list: MATH 144, 176, 177; CSCI 161, 162, 164, 165, 166, 167, 168, 169, 181, 182, 196. Computer science majors may not take CSCI 165 or 166 as MATH 165 or 166. (Although not required, MATH 122 is highly recommended.)
- COEN 177 and one approved COEN upper-division course
- One additional approved upper-division course from COEN, CSCI or MATH 144, 176 or 177

Students are encouraged to select one of the following areas of focus to guide their choices of upper-division courses:

- Foundations: CSCI 161, MATH 176 and 177, COEN 173
- Numerical Computation: MATH 144, CSCI 165 and 166, COEN 145
- Software: CSCI 161 and 169, COEN 174, COEN 176 or 178
- Graduate School Preparation: CSCI 166, MATH 176 and 177, COEN 175
- Another area of focus developed in conjunction with the department

Emphasis in Cryptography and Security

Complete the requirements for a Bachelor of Science in Computer Science (Mathematics) with the following specifications:

- MATH 178
- CSCI 181
- COEN 150 and either COEN 146 or 152
- MATH 122 and CSCI 182 are highly recommended

For the major in either mathematics or computer science (mathematics), at least four of the required upper-division courses in the major must be taken at Santa Clara. A single upper-division course in the Department of Mathematics and Computer Science may not be used to satisfy requirements for two majors or minors.

REQUIREMENTS FOR THE MINORS

Minor in Mathematics

Students must fulfill the following requirements for a minor in mathematics:

- MATH 11, 12, 13, 14; 52 or 53
- Three approved upper-division mathematics courses with no more than one course selected from MATH 165 and 166. In place of MATH 165 or 166, a student may select an upper-division computer science course.

Minor in Computer Science

Students must fulfill the following requirements for a minor in computer science:

- CSCI 10, 60 and 61
- MATH 12 or 51
- COEN 20 and 21
- Three approved upper-division computer science courses. In place of an upper-division computer science course, a student may select from MATH 144, 176, or 177.

PREPARATION IN MATHEMATICS FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach mathematics or computer science in California secondary schools must pass the California Subject Examination for Teachers (CSET), a subject area competency examination. The secondary teaching credential additionally requires the completion of an approved credential program, which can be completed as a fifth year of study and student teaching, or through an undergraduate summer program internship. Students who are contemplating secondary school teaching in mathematics or computer science should consult with the coordinator in the Department of Mathematics and Computer Science as early as possible.

LOWER-DIVISION COURSES: MATHEMATICS

4. The Nature of Mathematics

For liberal arts students. Topics chosen from the theory of numbers, combinatorics, geometry, and other suitable areas. Material will generally be presented in a historical setting that allows students to participate in the discovery and development of important mathematical ideas and enhances their appreciation of the beauty of mathematics in the real world. Emphasis on problem solving and doing mathematics. *Formerly MATH 41.* (4 units)

6. Finite Mathematics for Social Science

Introduction to finite mathematics with applications to the social sciences. Sets, logic, combinatorial problems, probability, vectors, and matrices. (4 units)

7. Calculus for Social Science

Introduction to differential and integral calculus with applications to the social sciences. Ordinarily, only one of MATH 7, 11, or 30 may be taken for credit. (4 units)

8. Introduction to Statistics

Elementary topics in statistics chosen from descriptive statistics, probability, random variables and distributions, sampling, estimation, hypothesis testing, regression, and correlation. (4 units)

9. Precalculus

College algebra and trigonometry for students intending to take calculus. Does not fulfill the University Core Curriculum requirement in mathematics. (4 units)

11. Calculus and Analytic Geometry I

Differentiation and applications, introduction to integration. Ordinarily, only one of MATH 7, 11, or 30 may be taken for credit. *Prerequisite: Four years of high school mathematics (including trigonometry) or satisfactory grade in MATH 9. If MATH 9 is taken, a grade of C- or higher is strongly recommended before taking MATH 11.* (4 units)

12. Calculus and Analytic Geometry II

Continuation of 11. Methods and applications of integration, transcendental functions. Only one of MATH 12 or 31 may be taken for credit. *Prerequisite: MATH 11 or equivalent. A grade of C- or higher in MATH 11 is strongly recommended before taking MATH 12.* (4 units)

13. Calculus and Analytic Geometry III

Infinite series, vectors, vector functions, quadric surfaces. *Prerequisite: MATH 12 or equivalent. A grade of C- or higher in MATH 12 is strongly recommended before taking MATH 13.* (4 units)

14. Calculus and Analytic Geometry IV

Curvilinear coordinate systems, partial derivatives, multiple integrals, vector calculus. *Prerequisite: MATH 13 or equivalent. A grade of C- or higher in MATH 13 is strongly recommended before taking MATH 14. Formerly MATH 21.* (4 units)

22. Differential Equations

Explicit solution techniques for first order differential equations and higher order linear differential equations. Use of numerical, series, and Laplace transform methods. Applications. Only one of MATH 22 and AMTH 106 may be taken for credit. *Prerequisite: MATH 14.* (4 units)

30. Calculus for Business I

Differentiation and its applications to business, including marginal cost and profit, maximization of revenue, profit, utility, and cost minimization. Natural logarithms and exponential functions and their applications, including compound interest and elasticity of demand. Study of the theory of the derivative normally included in MATH 11, except trigonometric functions not included here. Ordinarily, only one of MATH 7, 11, or 30 may be taken for credit. *Note: MATH 30 is not a suitable prerequisite for MATH 12. Prerequisite: Three years of high school mathematics (excluding trigonometry) or MATH 9. If MATH 9 is taken, a grade of C- or higher is strongly recommended before taking MATH 30.* (4 units)

31. Calculus for Business II

Integration and its applications to business, including consumer surplus and present value of future income. Functions of several variables and their derivatives; Lagrange multipliers and constrained optimization. Emphasis throughout the sequence on mathematical modeling, the formulation of practical problems in mathematical terms. Only one of MATH 12 or 31 may be taken for credit. *Prerequisite: MATH 30 or equivalent. A grade of C- or higher in MATH 30 is strongly recommended before taking MATH 31.* (4 units)

44. Mathematics for Elementary Teachers I

Problem solving and logical thinking approach to whole numbers: their nature, counting, place value, computational operations, properties, and patterns. Intuitive

two-dimensional geometry and measurement, especially metric. Arrupe Center participation required. (4 units) NCX

45. Mathematics for Elementary Teachers II

Problem solving and logical thinking approach to fractional numbers, integers, rational numbers, and real numbers: their nature, computational operations, properties, and patterns. Intuitive three-dimensional geometry and measurement, especially metric. Functions, relations, and graphs. *Prerequisite: MATH 44.* (4 units) NCX

51. Discrete Mathematics

Relations and operations on sets, orderings, elementary combinatorial analysis, recursion, algebraic structures, logic, and methods of proof. *Also listed as COEN 19.* (4 units)

52. Introduction to Abstract Algebra

Groups, homomorphisms, isomorphisms, quotient groups, fields, integral domains; applications to number theory. *Prerequisite: MATH 51 or permission of the instructor.* (4 units)

53. Linear Algebra

Vector spaces, linear transformations, algebra of matrices, eigenvalues and eigenvectors, and inner products. *Prerequisite: MATH 13.* (4 units)

90. Lower-Division Seminars

Basic techniques of problem solving. Topics in algebra, geometry, and analysis. (1–4 units)

UPPER-DIVISION COURSES: MATHEMATICS

Note: Although CSCI 10 is not explicitly listed as a formal prerequisite, some upper-division courses suggested for computer science (mathematics) majors may presuppose the ability to write computer programs in some language. A number of upper-division courses do not have specific prerequisites. Students planning to enroll should be aware, however, that all upper-division courses in mathematics require some level of maturity in mathematics. Those without a reasonable background in lower-division courses are advised to check with instructors before enrolling.

100. Writing in the Mathematical Sciences

An introduction to writing and research in mathematics. Techniques in formulating research problems, standard proof methods, and proof writing. Practice in mathematical exposition for a variety of audiences. Strongly recommended for mathematics and computer science majors beginning their upper-division coursework. MATH 100 may not be taken to fulfill any mathematics or computer science upper-division requirements for students majoring or minoring in mathematics or computer science. (5 units)

101. A Survey of Geometry

Topics from projective, advanced Euclidean, and non-Euclidean geometries. Symmetry. Offered in alternate years. (5 units)

102. Advanced Calculus

Vector calculus, functions of several variables, elliptic integrals, line integrals, Stokes's theorem, and the divergence theorem. *Prerequisites: MATH 14 and 53.* (5 units)

103. Linear Algebra II

Abstract vector spaces, dimensionality, linear transformations, isomorphisms, matrix algebra, Eigenspaces and diagonalization, Cayley-Hamilton Theorem, canonical forms, unitary and Hermitian operators, applications. *Prerequisite: MATH 53.* (5 units)

105. Theory of Functions of a Complex Variable

Analytic functions. Cauchy integral theorems, power series, conformal mapping. Riemann surfaces. Offered in alternate years. (5 units)

111. Abstract Algebra I

Topics from the theory of groups. Offered in alternate years. *Prerequisites: MATH 52 and 53.* (5 units)

112. Abstract Algebra II

Rings and ideals, algebraic extensions of fields, and the Galois theory. Offered in alternate years. *Prerequisite: MATH 111.* (5 units)

113. Topology

Topological spaces and continuous functions. Separability and compactness. Introduction to covering spaces or combinatorial topology. Offered in alternate years. *Prerequisite: MATH 52, 53, or 102.* (5 units)

122. Probability and Statistics I

Sample spaces; conditional probability; independence; random variables; discrete and continuous probability distributions; expectation; moment-generating functions; weak law of large numbers; central limit theorem. *Prerequisite: MATH 14.* (5 units)

123. Probability and Statistics II

Estimation and hypothesis testing. Maximum likelihood estimation, likelihood ratio tests, and sampling from the normal distribution. Applications. *Prerequisites: MATH 53 or permission of instructor and MATH 122.* (5 units)

125. Mathematical Finance

Models for the movement of stock and bond prices using Brownian motion and Poisson processes. Introduction to Ito calculus and stochastic differential equations. Discrete lattice models. Pricing models for equity and bond options via Black-Scholes and its variants. Optimal discrete and continuous time portfolio rebalancing. Solution techniques will include Monte Carlo and finite difference methods. *Prerequisite: MATH 122 or AMTH 108. MATH 53 recommended but not required.* (5 units)

133. Logic and Foundations

Deductive theories. Theories and models. Consistency, completeness, decidability. Theory of models. Cardinality of models. Some related topics of metamathematics and foundations. Open to upper-division science and mathematics students and to philosophy majors having sufficient logical background. Offered on demand. (5 units)

134. Set Theory

Naive set theory. Cardinal and ordinal arithmetic. Axiom of choice and continuum hypothesis. Axiomatic set theory. Offered on demand. (5 units)

144. Partial Differential Equations

Linear partial differential equations with applications in physics and engineering, including wave (hyperbolic), heat (parabolic), and Laplace (elliptic) equations. Solutions on bounded and unbounded domains using Fourier series and Fourier transforms. Introduction to nonlinear partial differential equations. Offered in alternate years. *Prerequisite: MATH 14. Recommended: MATH 22 or AMTH 106.* (5 units)

153. Intermediate Analysis I

Rigorous investigation of the real number system. Concepts of limit, continuity, differentiability of functions of one real variable, uniform convergence, and theorems of differential and integral calculus. Offered in alternate years. *Prerequisite: MATH 102.* (5 units)

154. Intermediate Analysis II

Continuation of MATH 153. Offered in alternate years. *Prerequisite: MATH 153.* (5 units)

155. Ordinary Differential Equations

Solutions to systems of linear differential equations. Behavior of nonlinear autonomous two-dimensional systems. Uniqueness and existence of solutions. Offered in alternate years. (5 units)

165. Linear Programming

Algebraic background. Transportation problem. General simplex methods. Linear programming and theory of games. Numerical methods. Offered in alternate years. *Also listed as CSCI 165.* (5 units)

166. Numerical Analysis

Numerical algorithms and techniques for solving mathematical problems. Linear systems, integration, approximation of functions, solution of nonlinear equations. Analysis of errors involved in the various methods. Direct methods and iterative methods. *Prerequisites: (1) The ability to program in some scientific language, (2) MATH 53 or permission of the instructor. Also listed as CSCI 166.* (5 units)

170. Development of Mathematics

A selection of mathematical concepts with their historical context. Offered in alternate years. *Prerequisite: Upper-division standing in a science major.* (5 units)

172. Problem Solving

Use of induction, analogy, and other techniques in solving mathematical problems. Offered in alternate years. (5 units)

174. Differential Geometry

Introduction to curves and surfaces. Frenet-Serret formulas, Gauss' Theorema Egregium, Gauss-Bonnet theorem. Offered in alternate years. *Prerequisite: MATH 53.* (5 units)

175. Theory of Numbers

Fundamental theorems on divisibility, primes, congruences. Number theoretic functions. Diophantine equations. Quadratic residues. Partitions. Offered in alternate years. *Prerequisite: MATH 52.* (5 units)

176. Combinatorics

Permutations and combinations, generating functions, recursion relations, inclusion-exclusion, Pólya counting theorem, and a selection of topics from combinatorial geometry, graph enumeration, and algebraic combinatorics. (5 units)

177. Graph Theory

Selected topics from planarity, connectedness, trees (enumeration), digraphs, graph algorithms, and networks. Offered in alternate years. (5 units)

178. Cryptography

History, classical cryptosystems, stream ciphers, AES, RSA, discrete log over finite fields and elliptic curves, stream ciphers, and signatures. (5 units)

190. Upper-Division Seminars

Advanced topics in algebra, geometry, or analysis. Research projects. May be repeated for credit. (1–5 units)

197. Advanced Topics

Areas of mathematics not ordinarily covered in regularly scheduled courses, often areas of current interest. May be repeated for credit. (5 units)

198. Internship/Practicum

Guided study related to off-campus practical work experience in mathematics or statistics. Enrollment restricted to majors or minors of the department. *Prerequisite: Approval of a faculty sponsor.* (1–5 units)

199. Independent Study

Reading and investigation for superior students under the direction of a staff member. This can be used only to extend, not to duplicate, the content of other courses. May be repeated for credit. (1–5 units)

LOWER-DIVISION COURSES: COMPUTER SCIENCE

3. Introduction to Computing and Applications

An overview course providing background on how computers process information and interact with the world; topics presented with a historical perspective; computer-related issues studied within the context of broader, more abstract concepts; the ethical and social responsibility associated with technology. (4 units)

10. Introduction to Computer Science

Introduction to computer science and programming: overview of hardware and software organization; structured programming techniques using C++; elementary algorithms and data structures; abstract data types; the ethical and societal dimensions of computers and technology. Primarily (but not exclusively) for majors in computer science, mathematics, and physical sciences. CSCI 10 may not be taken for credit if the student has received credit for a course in C++ or Java. *Prerequisite: MATH 11 (may be taken concurrently).* (4 units)

60. Object-oriented Programming

Object-oriented programming techniques using C++: abstract data types and objects; encapsulation; inheritance; polymorphism; the Standard Template Library; the five phases of software development (specification, design, implementation, analysis, and testing). *Prerequisites: CSCI 10 or an equivalent introductory course in a scientific language.* (4 units)

61. Data Structures

Specification, implementations, and analysis of basic data structures (stacks, queues, graphs, hash tables, binary trees) and their applications in sorting and searching algorithms. *Prerequisite: CSCI 60. CSCI 61 and COEN 12 cannot both be taken for credit.* (4 units)

90. Lower-Division Seminars

Basic techniques of problem solving. Topics in computer science. (1–4 units)

UPPER-DIVISION COURSES: COMPUTER SCIENCE

Note: Although CSCI 10 is not explicitly listed as a formal prerequisite, some upper-division courses suggested for computer science (mathematics) majors may presuppose the ability to write computer programs in some language. A number of upper-division courses do not have specific prerequisites. Students planning to enroll should be aware, however, that all upper-division courses in computer science require some level of maturity in computer science and mathematics. Those without a reasonable background in lower-division courses are advised to check with instructors before enrolling.

161. Theory of Automata and Languages I

Classification of automata, formal languages, and grammars. Chomsky hierarchy. Representation of automata and grammars, BNF. Deterministic and nondeterministic finite state automata. Regular expressions and languages. Push-down automata. Context-free languages. Context-sensitive grammars and linear bounded automata. Recursively enumerable languages. Turing machines; normal forms; undecidability. Offered in alternate years. *Prerequisites: MATH 52 and CSCI 61 or equivalent.* (5 units)

162. Theory of Automata and Languages II

Continuation of CSCI 161. Offered in alternate years. *Prerequisite: CSCI 161.* (5 units)

163. Theory of Algorithms

Introduction to techniques of design and analysis of algorithms: asymptotic notations

and running times of recursive algorithms; design strategies: brute-force, divide and conquer, decrease and conquer, transform and conquer, dynamic programming, greedy technique. Intractability: P and NP, approximation algorithms. *Also listed as COEN 179. Prerequisites: MATH 51 or 52, or equivalent, and CSCI 61 or equivalent.* (5 units)

164. Computer Simulation

Techniques for generation of probability distributions. Computer models of queueing in inventory and scheduling. Simulation of economic systems. Monte Carlo methods for physical systems. Offered in alternate years. *Prerequisite: The ability to program in some scientific language. MATH 122 recommended but not required.* (5 units) NCX

165. Linear Programming

Algebraic background. Transportation problem. General simplex methods. Linear programming and theory of games. Numerical methods. Offered in alternate years. *Also listed as MATH 165.* (5 units)

166. Numerical Analysis

Numerical algorithms and techniques for solving mathematical problems. Linear systems, integration, approximation of functions, solution of nonlinear equations. Analysis of errors involved in the various methods. Direct methods and iterative methods. *Also listed as MATH 166. Prerequisites: (1) The ability to program in some scientific language, (2) MATH 53 or permission of the instructor.* (5 units)

167. Switching Theory and Boolean Algebra

Switching algebra and Boolean algebra. Minimization via Karnaugh maps and Quine-McCluskey, state compatibility, and equivalence. Machine minimization. Faults. State identification, finite memory, definiteness, information losslessness. Offered on demand. (5 units)

168. Computer Graphics

Systematic and comprehensive overview of interactive computer graphics, such as mathematical techniques for picture transformations and curve and surface approximations. *Prerequisite: The ability to program in some scientific language. MATH 53 recommended but not required.* (5 units)

169. Programming Languages

Comparative study of major classes of programming languages. Introduction to theoretical definitions of languages and run-time concerns, with emphasis on good points and deficiencies of various languages and on using the appropriate language for a given task. Programs written in several languages (e.g., LISP, FORTRAN-2003, C, C++, MPI). Offered in alternate years. (5 units)

181. Applied Cryptography

Key management, hash functions, stream ciphers, web of trust, time stamping, secret sharing, quantum cryptography, running time analysis, cryptanalytic techniques. *Prerequisite: MATH 178.* (5 units)

182. Digital Steganography

History and applications; Techniques: substitution, transform domain, distortion, statistical, cover; Evaluation: benchmarking, statistical analysis; Attacks: distortion, counterfeiting, detection; Theory: perfect and computational security. (5 units)

190. Upper-Division Seminars

Advanced topics in computer science. Research projects. May be repeated for credit. (1–5 units)

197. Advanced Topics

Areas of computer science not ordinarily covered in regularly scheduled courses, often areas of current interest. May be repeated for credit. (5 units)

198. Internship/Practicum

Guided study related to off-campus practical work experience in computer science. Enrollment restricted to majors or minors of the department. *Prerequisite: Approval of a faculty sponsor.* (1–5 units)

199. Independent Study

Reading and investigation for superior students under the direction of a staff member. This can be used only to extend, not to duplicate, the content of other courses. May be repeated for credit. (1–5 units)

DEPARTMENT OF MODERN LANGUAGES AND LITERATURES

Professors: Rose Marie Beebe, Francisco Jiménez *(Fay Boyle Professor),* Catherine R. Montfort, Victor B. Vari *(Harold and Edythe Toso Professor)*
Associate Professors: Josef Hellebrandt *(Department Chair),* Jill Pellettieri, Tonia Caterina Riviello, Gudrun Tabbert-Jones, Juan Velasco
Assistant Professor: Jimia Boutouba
Senior Lecturers: Elsa Li, Lucía Varona
Renewable Term Lecturers: Maria Bauluz, Irene Bubula-Phillips, Lucille Couplan-Cashman, Yoshiko Miyakoshi, Nina Tanti

The Department of Modern Languages and Literatures offers a degree program leading to the Bachelor of Arts in French and Francophone Studies, German Studies, Italian Studies, or Spanish Studies. Honors programs are available for French and German majors. The department offers courses in Arabic, Chinese, French, German, Italian, Japanese, and Spanish. The courses are designed to help students achieve proficiency in both the oral and written language and to provide them with an understanding of the experiences, values, and traditions of those peoples whose languages are studied. Courses range from beginning language to linguistics, from an introduction to literary texts to advanced courses in literature and culture. All courses are open to any student with the requisite preparation.

A few courses in literature and culture offered by the department are taught in English and are open to any student. Some of these courses may be used as credit toward a major or minor in French and Francophone studies, a major or minor in German studies, or a minor in Japanese studies. However, these courses in English will not fulfill the University Core Curriculum foreign language requirement. Students may fulfill their second language Core Curriculum requirement by successfully completing a proficiency examination in a modern foreign language at the level for their program of study.

Students who have never studied the language in which they wish to enroll, or who have studied that language for one year in high school, should register for Language 1. Those who wish to continue in a language that they have studied for two years in high school should enter Language 2. Students with three or more years of study in a single language, those who wish to continue language study beyond the second language requirement, or those who feel following the formula would place them in a higher or lower level course than their background warrants should consult a member of the appropriate language faculty for placement advice. Students having the necessary proficiency, as demonstrated by an interview with a member of the language faculty, may enroll in higher-numbered courses than those of the placement formula. Once proficiency has been established, lower-division students may enroll in upper-division courses with the permission of the instructor. Such courses will be counted as fulfilling major or minor requirements.

Courses numbered 1 through 102 are not open to challenge; for courses numbered above 102, consult the individual listing.

Study abroad is a valuable enhancement of the undergraduate experience and is particularly recommended for students pursuing a major or minor in a foreign language. Students should consult with both the Office of International Programs and the student's foreign language advisor to ensure appropriate integration of the work done abroad into the student's program of study.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in modern languages and literatures must complete the following departmental requirements for their specific major:

Major in French and Francophone Studies

- FREN 100 and 101 or department-approved substitutes
- At least one course in French or Francophone literature
- Additional electives in French or Francophone studies to total 40 quarter upper-division units chosen with the approval of the student's major advisor. At least 20 of these units must be taken at SCU or taught by SCU faculty.

Major in German Studies

- GERM 100 and 101 or department-approved substitutes
- Additional electives in German language, literature, and culture to total 40 quarter upper-division units. At least 20 of these units must be taken at SCU or taught by SCU faculty.

Major in Italian Studies

- ITAL 100 and 101 or department-approved substitutes
- Additional electives in Italian language and literature to total 40 quarter upper-division units, chosen with the student's faculty advisor. At least 20 of these units must be taken at SCU or taught by SCU faculty.

Major in Spanish Studies

- SPAN 100 and 101 or department-approved substitutes
- SPAN 175
- At least one survey course (but not more than three) from: SPAN 120, 121, 130, 131
- One course in Latin-American literature or culture
- One course in Spanish peninsular literature or culture
- Additional electives in Spanish language, literature and culture to total 40 quarter units of upper-division work, chosen with the approval of the Spanish advisor. At least 20 of these units must be taken at SCU or taught by SCU faculty.

REQUIREMENTS FOR THE MINORS

Students must fulfill the following requirements for the specific minor in modern languages and literatures:

Minor in French and Francophone Studies

- FREN 100 and 101 or department-approved substitutes
- At least one course in French or Francophone literature
- Additional electives to total at least 19 quarter units of upper-division work in French. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in German Studies

- GERM 100 and 101 or department-approved substitutes
- Additional electives to total at least 19 quarter units of upper-division work in German. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in Italian Studies

- ITAL 100 and 101 or department-approved substitutes
- Additional electives to total at least 19 quarter units of upper-division work in Italian. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in Japanese Studies

- JAPN 100, 101, and 102 or department-approved substitutes
- Additional electives to total at least 19 quarter units of upper-division work in Japanese. At least 10 of these units must be taken at SCU or taught by SCU faculty.

Minor in Spanish Studies

- SPAN 100 and 101 or department-approved substitutes
- At least one course in Hispanic literature or culture
- Additional electives to total at least 19 quarter units of upper-division work in Spanish. At least 10 of these units must be taken at SCU or taught by SCU faculty.

PREPARATION IN SPANISH FOR ADMISSION TO TEACHER TRAINING CREDENTIAL PROGRAMS

The State of California requires that students seeking a credential to teach Spanish in California secondary schools either pass a subject-area examination or successfully complete the state-approved subject-matter preparation program in the language to be taught. The teaching credential itself requires the completion of an approved credential program, which can be completed as a fifth year of study with student teaching, or through a summer program and internship in conjunction with the undergraduate pre-teaching program. The subject-matter preparation program in Spanish is valid through 2010; to be eligible for the Waiver Program, students must be graduating no later than 2010. Students interested in this program should consult with one of the coordinators.

LOWER-DIVISION COURSES: ARABIC STUDIES

1. Elementary Arabic I

This course introduces students to Modern Standard Arabic (MSA) and the cultures of the Arabic-speaking world. Through the four basic skills of listening, speaking, reading, writing, as well as cultural knowledge, students will acquire basic knowledge and understanding in the writing system; sounds and pronunciation of Arabic letters; Arabic grammar; writing and reading basic sentences; and building a list of vocabulary in MSA and Colloquial Arabic. (4 units)

2. Elementary Arabic II

A continuation of Arabic 1 designed for students to acquire additional vocabulary, the rules of Arabic grammar, and reading more complex materials. Modern Standard Arabic (MSA) through Al-Kitaab series textbooks will be used to allow students to acquire additional knowledge and understanding in many areas of the Arabic language. Students in this course are exposed to authentic reading and listening materials that are of more depth and length than those used in Arabic 1. *Prerequisite: Arabic 1 or equivalent.* (4 units)

3. Elementary Arabic III

A continuation of elementary Arabic in which students will acquire additional vocabulary, a more advanced understanding of Arabic grammar, and will write and read more complex materials with comprehension of case system and sentence structure. Modern Standard Arabic (MSA) through Al-Kitaab series textbooks will be used to allow students to acquire additional knowledge and understanding in the structure of the Arabic language. Students in this course are exposed to authentic reading and listening materials through lectures, discussions, exercises and communicative language activities. *Prerequisite: Arabic 2 or equivalent.* (4 units)

21. Intermediate Arabic I

Focuses on reading and discussion of texts dealing with the literature, arts, geography, history, and culture of the Arabic-speaking world. Review of the linguistic functions and grammar structures of first-year Arabic. The teaching/learning process in this level is proficiency-oriented where emphasis is placed on the functional usage of Arabic. *Prerequisite: Arabic 3 or equivalent.* (4 units)

22. Intermediate Arabic II

Continuation of Intermediate Arabic with focus on building additional vocabulary, using Arabic-English dictionary, reading and discussion of Arabic texts dealing with the literature, arts, geography, history, and culture of the Arabic-speaking world. The teaching/learning process in this level is proficiency-oriented where emphasis is placed on the functional usage of Arabic. *Prerequisite: Arabic 21 or equivalent.* (4 units)

23. Intermediate Arabic III

Continuation of Intermediate Arabic with focus on grammatical and linguistic structure in texts dealing with the literature, arts, geography, history, and culture of the Arabic-speaking world. The teaching/learning process in this level is proficiency-oriented where emphasis is placed on the functional usage of Arabic. *Prerequisite: Arabic 22 or equivalent.* (4 units)

50. Intermediate Arabic Conversation

This course focuses on the spoken Arabic dialect of the Levant (Lebanon, Syria, Jordan, and Palestine) as one of the major Arabic dialects spoken and understood in the Arab world. The course is a combination of lecture, discussion, exercises and communicative language activities. It aims to develop conversational skills focusing on the use of topic-structured drills and activities that are appropriate to the context in which the language will be spoken. Representative examples of colloquial literature, plays, songs, and TV series will be introduced. Colloquial Arabic will be the primary language of instruction. (4 units)

UPPER-DIVISION COURSES: ARABIC STUDIES

137. Arabic Culture and Identity

This course will introduce the students to the major aspects of Arabic and Islamic culture in the context of the complex history of the Arabic world. It will include coverage of religious and ethnic diversity, language, the Arabic family structure, values traditions, and customs. Arabic literatures and poetry from the classical period to the present will be introduced. The Arabic visual and performing arts, music, food, and clothing will be covered. This course is open to all upper-division students who are interested in learning about Arabs and their culture. This course is taught in English; knowledge of Arabic is desirable but not required. Course does not fulfill University Core foreign language requirement. (5 units)

164. The Art of Arabic Calligraphy

Arabic calligraphy is a genuine Arabic and Islamic art form that links the literary heritage of the Arabic language with the religion of Islam. Calligraphy means "beautiful handwriting," and in Arabic it also means "the geometry of the spirit." This course will combine theory with practice and through hands-on projects; it will introduce students to the Arabic writing system and the art of Arabic calligraphy. (5 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LOWER-DIVISION COURSES: CHINESE STUDIES

1. Elementary Chinese I

Designed for those having no previous study of Mandarin Chinese. A proficiency-based course emphasizing communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Chinese culture. (4 units)

2. Elementary Chinese II

The second in a series of three courses, CHIN 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Chinese culture. *Prerequisite: CHIN 1, or two years of high school Chinese, or equivalent.* (4 units)

3. Elementary Chinese III

CHIN 3 completes first-year Chinese. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Chinese culture. *Prerequisite: CHIN 2 or equivalent.* (4 units)

21. Intermediate Chinese I

The first course in a three-part review of the fundamentals of spoken and written Mandarin Chinese. Progressive readings and exercises in conversation and composition. Development of an understanding of Chinese culture. *Prerequisite: CHIN 3 or equivalent.* (4 units)

22. Intermediate Chinese II

Continuation of the review of Chinese structure, together with progressive development of all Chinese skills. Broadening appreciation of Chinese culture through reading and discussion. *Prerequisite: CHIN 21 or equivalent.* (4 units)

23. Intermediate Chinese III

Completion of intermediate Chinese. *Prerequisite: CHIN 22 or equivalent.* (4 units)

UPPER-DIVISION COURSES: CHINESE STUDIES

100. Advanced Chinese I

This course is aimed at expanding the student's vocabulary in written and spoken Chinese, and developing the ability to comprehend and use complex grammatical structures with ease. Course conducted in Chinese. *Prerequisite: CHIN 23 or equivalent.* (5 units)

101. Advanced Chinese II

The second in a series of three courses, CHIN 101 is aimed at expanding vocabulary in written and spoken Chinese, and developing the ability to comprehend and use complex grammatical structures with ease. Course conducted in Chinese. *Prerequisite: CHIN 100 or equivalent.* (5 units)

102. Advanced Chinese III

This course completes the advanced Chinese series and is aimed at expanding the vocabulary in written and spoken Chinese and developing an ability to comprehend and use complex grammatical structures with ease. Course conducted in Chinese. *Prerequisite: CHIN 101 or equivalent.* (5 units)

137. Modern Chinese Culture

This course introduces students to the culture in modern China through literature (fiction and other reading matter), popular music, and film. This course will also give attention to business etiquette and culture in China. All readings are in English. No Chinese language is required, though students with Chinese language background are encouraged to work with Chinese sources if they wish. This course does not fulfill the University Core foreign language requirement. *Prerequisite: None.* (5 units)

198. Directed Study

Individually designed programs of advanced study. Restricted to seniors who find themselves in special circumstances (i.e., Asian Studies or International Studies minors). May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LOWER-DIVISION COURSES: FRENCH AND FRANCOPHONE STUDIES

1. Elementary French I

The first in a series of three courses, FREN 1 is intended for students who have had no prior experience with French. It emphasizes the development of communicative language skills and cultural understanding. This proficiency-based course follows the text *Deux Mondes* and requires active performance in class. (4 units)

2. Elementary French II

The second in a series of three courses, FREN 2 continues the development of communicative language skills and cultural understanding acquired in FREN I. This proficiency-based course follows the text *Deux Mondes* (chapter 4–7) and requires active participation in class. Offered only in winter. *Prerequisite: FREN 1, or two years of high school French, or equivalent.* (4 units)

3. Elementary French III

This course completes the elementary French series. Like its preceding courses, FREN 3 emphasizes the development of communicative language skills and cultural understanding. This proficiency-based course follows the text *Deux Mondes* and requires active performance in class as well as in scheduled multimedia sessions. *Prerequisite: FREN 2 or equivalent.* (4 units)

21. Intermediate French I

The first of two courses reviewing the fundamentals of spoken and written French. Readings in original prose. Appreciation of French and Francophone cultures (readings and discussions). *Prerequisite: FREN 3 or equivalent.* (4 units)

22. Intermediate French II

Continuation of the review of the fundamentals of spoken and written French. Further appreciation of French and Francophone cultures through readings and discussions. *Prerequisite: FREN 21 or equivalent.* (4 units)

50. Intermediate French Conversation

A course concentrating on development of a student's ability to speak and understand various French accents. Recommended for students going abroad. Course includes French-speaking field trips and, when possible, discussions with French visitors. No auditors. *Prerequisite: FREN 22 or equivalent.* (4 units)

UPPER-DIVISION COURSES: FRENCH AND FRANCOPHONE STUDIES

100. Advanced French I

Emphasis on spoken French. Use of Internet resources to broaden appreciation of French and Francophone culture. Readings include a novel and a play. Required of all majors and minors. An essential course for studying abroad. *Prerequisite: FREN 22 or equivalent.* (5 units) NCX

101. Advanced French II

Introduction to literary analysis in poetry, prose, and drama. Required of all majors and minors. (May be taken concurrently with certain other upper-division courses.) *Prerequisite: FREN 100 or equivalent.* (5 units)

102. Advanced French Conversation

Recommended for students who will study or work in France. Intensive oral work stressing self-expression and discussion skills. Topics will be chosen from contemporary readings and cross-cultural comparisons will be made with American society. No auditors. *Prerequisite: FREN 100 or equivalent and permission of the instructor. Prospective students must arrange an interview with the instructor to receive a permission number. Limited to the first 12 students approved.* (2 units)

103. Advanced French Composition

Development of concrete writing skills for a variety of writing tasks, such as "explication de textes," "compte-rendu critique," and "essai argumentatif." The correct use of syntax and lexicon, as well as the progression of ideas will be stressed. Continuous writing assignments based on readings and a final essay are required. *Prerequisite: FREN 100 or equivalent.* (3 units)

106. Advanced French Conversation and Composition

Intensive work in French conversation and composition, focusing on everyday situations. No auditors. *Prerequisite: FREN 100 or equivalent.* (5 units) NCX

108. French Business Culture and Institutions

Basic French business terminology and practices. Business letter writing emphasized. Examination of French business institutions (agriculture, finance, advertising, transportation, etc.). Special emphasis on understanding the underlying cultural mores that make French business different from U.S. business. (5 units)

110. Introduction to French Culture and Civilization

Cultural, political, economic, artistic, educational, and social aspects of France. (5 units)

111. Introduction to Francophone Studies: From the Caribbean to Vietnam

Cultural, political, economic, educational, and social aspects of Francophone countries. Exploration through literary works and films of issues involving nationalism, race, gender, identity, and alienation. Geographic areas include the Caribbean, North Africa, sub-Saharan Africa, Quebec, and Vietnam. May be taken independently of FREN 110. (5 units)

113. Francophone Culture and Civilization: Black African Women Writers

An introduction to literature written by black African women writers. Through literature (interviews, personal testimonies, novels, autobiography) and film (documentaries, movies), students will witness the changing faces of black Africa, from colonial times to the present, as seen through the eyes of women. (5 units)

115. Major Works of French Literature I

Readings in French literature from its beginnings in the Moyen Age to the end of the 18th century. Rotated topics include the theme of love, the comic, the writer's relationship to societies, the emerging genre of the theatre, etc. (5 units)

116. Major Works of French Literature II

Readings in French literature of the 19th and 20th centuries. Rotated topics include drama, the novel, literature and the arts, experimentation (literary and dramatic), etc. May be taken independently of FREN 115. (5 units)

120. Moyen Age

Epic, lyric, and courtly literature of Medieval France: Roland, l'amour courtois and the Troubadours, Chrétien de Troyes, Tristan et Iseut, Artur, the early theatre. (5 units)

130. Humanism and the Renaissance

La Renaissance: readings in Rabelais, the Pléiade poets, and Montaigne. (5 units)

140. Le Grand Siècle: Theatre in the Age of Louis XIV

Stress on classical tragedy and comedy in France, with special emphasis on the social and political context in which these genres were produced. Additional materials will be drawn from other writers of the 17th century such as Descartes, Pascal, Mme de La Fayette, and La Fontaine. (5 units) NCX

150. The French Enlightenment

Exploration of the major philosophical, literary, and artistic movements in France between the years 1715 (Louis XIV's death) and 1789 (the French Revolution), with an emphasis on their uneasy relationship to the social, political, and religious institutions of pre-revolutionary France. Texts by Montesquieu, Voltaire, Mme de Charrière, Mme de Graffigny, Rousseau, and others. (5 units)

160. 19th Century I: Romantic and Romantique

Romantic literature: prose and poetry (Chateaubriand, Stendhal, Lamartine, Hugo, Balzac, Vigny, etc.). (5 units)

161. 19th Century II: Le réel et le symbolique

Realist, Naturalist, and Symbolist literature (Baudelaire, Flaubert, Mallarmé, etc.). (5 units)

170. 20th Century I: Mémoires et Souvenirs

Writings of la belle époque and entre deux guerres (Proust, Gide, Apollinaire, Dada, Surrealism, etc.). (5 units)

171. 20th Century II: The Existentialist Hero

The engagée literature, the Anti-theatre, the New Novel, and current directions (Anouilh, Sartre, Camus, Ionesco, Robbe-Grillet, Tournier, etc.). (5 units)

172. Cinéma

An examination of the evolution of style and theme in French cinema from its birth in 1895 to the present. Study of films by major directors (Renoir, Pagnol, Cocteau, Truffaut, Malle, Beineix, Diane Kurys). Main themes of French culture illustrated in the films. (5 units)

180. Seminars

Variable topics in culture, literature, and film. May be retaken for credit. (5 units) NCX

182. Women in French Literature: Authors and Characters

Literary analysis of the woman question, formulated through the works of major French writers, both female and male, such as Marie de France, Mme de Lafayette, Choderlos de Laclos, Maupassant, Colette, Marguerite Duras, and Simone de Beauvoir. Readings set against the backdrop of the Monarchy, the French Revolution of 1789, and the Napoleonic regime emphasize an emerging feminist awareness that found expression not only through political activism but also through literature. (5 units)

183. 20th-Century French Women Writers

The varied literary contributions of French and Francophone writers such as Colette, Simone de Beauvoir, Marguerite Duras, Elisabeth Badinter, Gabrielle Roy, Mariama Bâ; their differing perceptions of the traditional stereotypes of women and perspectives related to social class. Consideration of whether feminine literature has unique qualities. (5 units)

185. French Applied Linguistics

Aspects of modern French linguistics (phonology, phonetics, morphology, syntax). Contrastive analysis. (5 units) NCX

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared French and Francophone studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LITERATURE AND CULTURE IN TRANSLATION

Note: The following three courses are literature and culture in translation courses taught in English and cannot be used to fulfill the University Core Curriculum second language requirement. One course may be counted toward the French and Francophone studies major or minor.

112. Francophone Culture and Civilization: Africa and the Caribbean

A study of the political, social, and literary history of French-speaking Africa and the Caribbean (with a focus on Guadaloupe and Martinique). Explores the issues of identity crisis and cultural alienation in the works of leading writers. Conducted in English but contains a French component for French and Francophone studies majors and minors. (5 units)

174. French Novels and Films: Culture, Gender, and Social Classes

Analysis of classic French novels, ranging from Diderot's *The Nun* to Duras' *The Lover,* and films based on the same texts. Discussion of the adaptation of the novels to film and the characteristics of the novelist's world highlighted or ignored in the corresponding film. Of special interest is the question of whether feminine literature and films have unique qualities that distinguish them from the masculine tradition. Conducted in English but contains a French component for French and Francophone studies majors and minors. (5 units)

184. 20th-Century French Women Writers in Translation

The varied literary contributions of French and Francophone writers. Readings selected mainly from writers of the second half of the 20th century. Consideration of whether feminine literature has unique qualities. Conducted in English but contains a French component for French and Francophone studies majors and minors. (5 units)

LOWER-DIVISION COURSES: GERMAN STUDIES

1. Elementary German I

Designed for those having no previous study of German. A proficiency-based course emphasizing communicative language skills (understanding, speaking, reading, and writing). Cultural information on German-speaking countries. (4 units)

2. Elementary German II

The second in a series of three courses, GERM 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of the cultures of German-speaking countries. *Prerequisite: GERM 1, or two years of high school German, or equivalent.* (4 units)

3. Elementary German III

GERM 3 completes first-year German. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of German-speaking countries. *Prerequisite: GERM 2 or equivalent.* (4 units)

5. German for Reading Knowledge

Alternate to GERM 3 leading to the reading of scholarly articles in various fields of study. *Prerequisite: GERM 2 or equivalent.* (4 units)

21. Intermediate German I

Review of German grammar, short stories, or essays on culture and civilization. Progressive exercises in conversation. *Prerequisite: GERM 3 or 5 or equivalent.* (4 units)

22. Intermediate German II

Continuation of GERM 21. Accelerated readings, conversation, and writing. (4 units)

UPPER-DIVISION COURSES: GERMAN STUDIES

100. Advanced German I

Advanced reading, composition, and conversation. Emphasis on conversation and career-oriented language. Required of all minors. *Prerequisite: GERM 22 or equivalent.* (5 units)

101. Advanced German II

Reading of literary texts, composition, and discussion. Required of all minors. Completion or equivalent knowledge admits students to higher-numbered courses. *Prerequisite: GERM 100 or equivalent.* (5 units)

106. Advanced German Conversation

Advanced work stressing the development of self-expression in German. *Prerequisite: GERM 22 or equivalent.* (5 units)

108. German Business Culture and Institutions

Introduction to the language of business German. Insights into Germany's place in the global economy. The topics, language, and skill-building exercises offer an excellent preparation for students who, after two years of college-level German, plan to pursue careers in international companies and institutions. At the same time, the materials are appropriate for German majors or minors who want to gain insight into contemporary German culture and civilization. (5 units)

110. History of German Civilization

Cultural history of the German-speaking countries from earliest times to 1945. *Prerequisite: GERM 100 or equivalent.* (5 units)

111. Contemporary German Civilization

Geography, culture, education, politics, and the economy in the German-speaking countries since 1945. *Prerequisite: GERM 100 or equivalent.* (5 units)

112. Germany in the Media

How do Germans and Americans view Germany? This course highlights the role of the media in portraying Germany's image inside and outside of Germany. It examines how print and electronic media in both countries present selected themes and topics in the following categories: arts, economy, education, politics, and the sciences and how the media shape public opinion about Germany. (5 units)

130. The Classical Age

Major works by Goethe and Schiller. (5 units)

140. 19th-Century Romanticism

Philosophy of the Romantics. German fairy tale. Selected works by Kleist, Eichendorff, Heine, and Wagner. (5 units)

141. 19th-Century Realism

Works by Büchner, Hebbel, Fontane, Marx, and Hauptmann. (5 units)

150. 20th-Century Novel

Works by Kafka, Hesse, Thomas Mann, Christa Wolf, Böll, and others. (5 units)

151. 20th-Century Drama

Plays by Brecht, Borchert, Frisch, and Dürrenmatt and Brecht's theoretical writings. (5 units)

160. The German Novelle

Characteristic features of the Novelle as opposed to Roman and Erzählung. Examples from Theodor Storm to Thomas Mann. (5 units)

161. Survey of Lyric Poetry

Introduction to the analysis of poetry. Numerous examples from all German literary periods beginning with 1600. (5 units)

174. German Novels and Films

Various topics will be covered. (5 units)

180. Special Topics

Variable topics in culture and literature. May be retaken for credit. (5 units) NCX

182. Women in German Literature: Authors and Characters

Works by and about German women. Authors studied include Droste-Hulshof, Böll, Wolf, Handke, Kaschnitz, Wander, and others. (5 units)

183. 20th-Century German Women Authors and Artists

A selection from contributions by German women writers and film producers from the second half of the 20th century. (5 units)

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared German studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units) NCX

Literature in Translation

Note: Literature in translation courses are taught in English and cannot be used to fulfill the second language requirement. One course may be counted toward the German studies minor.

115. German Literature in English Translation

Reading and analysis of masterpieces of German literature written between 1750 and 1970. Selection dependent upon available translations. (5 units) NCX

LOWER-DIVISION COURSES: ITALIAN STUDIES

1. Elementary Italian I

Designed for those having no previous study of Italian. A proficiency-based course emphasizing the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Italian culture. (4 units)

2. Elementary Italian II

The second in a series of three courses, ITAL 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Italian culture. *Prerequisite: ITAL 1, or two years of high school Italian, or equivalent.* (4 units)

3. Elementary Italian III

ITAL 3 completes first-year Italian. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Italian culture. *Prerequisite: ITAL 2 or equivalent.* (4 units)

15. Italian Conversation and Composition

Intensive work stressing the skills of spoken and written Italian in everyday situations. Summer course; offered only in Assisi, Italy. *Prerequisite: None.* (4 units)

21. Intermediate Italian I

Review of fundamentals of spoken and written Italian. Progressive readings reflecting Italian culture and values. Progressive exercises in conversation and composition. *Prerequisite: ITAL 3 or equivalent.* (4 units)

22. Intermediate Italian II

Continuation of ITAL 21. *Prerequisite: ITAL 21 or equivalent.* (4 units)

62. Survey of Italian Culture and Civilization

Highlights of Italian history, geography, art, music, and culture from their origins to the present. Summer course; offered only in Assisi, Italy. (4 units)

UPPER-DIVISION COURSES: ITALIAN STUDIES

100. Advanced Italian I

Composition, reading, and conversation. Required of all majors and minors. *Prerequisite: ITAL 22.* (5 units)

101. Advanced Italian II

Continuation of ITAL 100. Required of all majors and minors. *Prerequisite: ITAL 100 or equivalent.* (5 units)

106. Advanced Italian Conversation

Advanced work stressing the development of self-expression in Italian. *Prerequisites: ITAL 101 or equivalent and permission of the instructor.* (5 units) NCX

110. Italian Civilization I

Fundamental aspects of Italian history, art, and culture from their origins to the Seicento. (5 units) NCX

111. Italian Civilization II

Continuation of ITAL 110. May be taken independently. From the Settecento to the present. (5 units)

112. Survey of Italian Culture and Civilization

Highlights of Italian history, geography, art, music, and culture from their origins to the present. Summer course; offered only in Assisi, Italy. *Prerequisite: ITAL 100 or equivalent.* (5 units)

113. Cinema e Cultura

A cultural portrait of modern Italy as reflected in its cinema. Films by Roberto Rossellini, Luchino Visconti, Vittorio De Sica, Michelangelo Antonioni, Federico Fellini, Francesco Rosi, Bernardo Bertolucci, Massimo Troisi, Ettore Scola, Mario Monicelli, and Marco Bellocchio illustrate cultural and intellectual change in the 20th century. *Prerequisite: ITAL 100 or equivalent.* (5 units)

120. Survey of Italian Literature I

From its origin to the Seicento. (5 units)

121. Survey of Italian Literature II

From the Settecento to the present. (5 units)

125. Colloquium: Italian Literature and Culture

Topic varies. Study and discussion of selected themes in Italian literature and culture. May be retaken for credit. (5 units) NCX

130. Dante, La Divina Commedia I

Inferno and Purgatorio. (5 units)

131. Dante, La Divina Commedia II

Purgatorio and Paradiso. (5 units)

140. Duecento, Trecento

Emphasis on Dante's minor works, Petrarch's poetry, and Boccaccio's Decameron. (5 units)

150. Quattrocento, Cinquecento (Rinascimento)

Important trends in the literary masterpieces of the Renaissance. Significant works of Ariosto, Tasso, Leonardo, Machiavelli, Lorenzo de Medici, Poliziano, Castiglione. (5 units)

160. Settecento

Salient works of Vico, Goldoni, Parini, and Alfieri. (5 units)

170. Ottocento, I Promessi Sposi

Discussion of the works of Foscolo, Leopardi, Manzoni's poetry. Carducci, Pascoli, and Verga. (5 units)

180. Novecento Italian Literature of the 20th Century

Main trends in poetry, drama, and the novel from Pirandello to the present. (5 units)

182. 20th-Century Italian Women Writers

Critical analysis of major works by leading women writers and the changing role of women in 20th-century Italian society: Grazia Deledda, Sibilla Aleramo, Elsa Morante, Natalia Ginzburg, Maria Bellonci, Laudomia Bonanni, Lalla Romano, Milena Milani, Francesca Sanvitale, Romana Petri, Isabella Bossi Fedrigotti, and Gina Lagorio. (5 units)

183. Women in Italian Cinema: The Impact of Globalization

Focus is on the films with a global viewpoint of numerous Italian film directors. Examination of Italian masterpieces (even the black-and-white films of the 40s and 50s) with special focus on the changing aspects of global society and their impact on individuals, especially women. Films by women directors whose work may give a contrasting vision of globalization and its enabling and challenging aspects. (5 units)

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared Italian studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of the instructor and department chair is required in advance of registration.* (1–5 units)

LOWER-DIVISION COURSES: JAPANESE STUDIES

1. Elementary Japanese I

Designed for those having no previous study of Japanese. A proficiency-based course emphasizing the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Japanese culture. (4 units)

2. Elementary Japanese II

Continuation of JAPN 1. An oral teaching approach is taken to further develop proficiency in comprehending and using elementary vocabulary and grammatical structures. Some ability to write Hiragana and Katakan is expected. Students will begin reading texts in Japanese and learning Chinese characters (kanji). We will learn 56 new kanji. Pertinent aspects of Japanese culture are also discussed. *Prerequisite: JAPN 1 or equivalent.* (4 units)

3. Elementary Japanese III

This class continues instruction in basic communication skills in Japanese. An oral teaching approach is taken to develop proficiency in comprehending and using elementary vocabulary and grammatical structures. New Chinese characters continue to be introduced, and reading and writing practiced. *Prerequisite: JAPN 2 or equivalent.* (4 units)

21. Intermediate Japanese I

New grammatical structures and additional written characters. Progressive exercises to develop facility in conversation, reading, and composition. *Prerequisite: JAPN 3 or equivalent.* (4 units)

22. Intermediate Japanese II

Continuation of JAPN 21. *Prerequisite: JAPN 21 or equivalent.* (4 units)

23. Intermediate Japanese III

Completion of intermediate Japanese. *Prerequisite: JAPN 22 or equivalent.* (4 units)

UPPER-DIVISION COURSES: JAPANESE STUDIES

100. Advanced Japanese I

Continued practice in using complex grammatical structures. Reading and discussion of topics taken from a variety of sources. *Prerequisite: JAPN 23 or equivalent.* (5 units)

101. Advanced Japanese II

Continuation of JAPN 100. *Prerequisite: JAPN 100 or equivalent.* (5 units)

102. Advanced Japanese III

Completion of advanced Japanese. *Prerequisite: JAPN 101 or equivalent.* (5 units)

113. Readings in Japanese I

Readings and discussions in Japanese of selected sociological, literary, and journalistic texts. *Prerequisite: JAPN 102 or equivalent.* (5 units)

114. Readings in Japanese II

Continuation of JAPN 113. *Prerequisite: JAPN 113 or equivalent.* (5 units)

115. Readings in Japanese III

Completion of readings in Japanese. *Prerequisite: JAPN 114 or equivalent.* (5 units)

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared Japanese studies minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Written permission of instructor and department chair required in advance of registration.* (1–5 units) NCX

LITERATURE AND CULTURE TAUGHT IN ENGLISH

Note: The following course is a literature and culture course taught in English and cannot be used to fulfill the University Core Curriculum second language requirement. One course (5 units) may be counted toward the Japanese studies minor.

137. Japanese Culture

An introduction to Japanese customs, values, and communication styles. Japanese customs will include basic protocol for getting to know Japanese people, the tea ceremony, flower arrangement, and Japanese cooking. Japanese values will concentrate on such key concepts as seniority rules, the virtue of modesty, private vs. public stance, Bushido (the way of the warrior), arranged marriage, and child-rearing practices. Japanese communication will focus on ambiguity, silence, dual meanings of inner and outer groups, and calligraphy. *Prerequisite: None.* (5 units)

LOWER-DIVISION COURSES: SPANISH STUDIES

1. Elementary Spanish I

Designed for those having no previous study of Spanish. A proficiency-based course emphasizing the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Hispanic culture. (4 units)

2. Elementary Spanish II

The second in a series of three courses, SPAN 2 emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Hispanic culture. *Prerequisite: SPAN 1, or two years of high school Spanish, or equivalent.* (4 units)

3. Elementary Spanish III

SPAN 3 completes first-year Spanish. This course emphasizes the development of communicative language skills (understanding, speaking, reading, and writing). Development of an understanding of Hispanic culture. *Prerequisite: SPAN 2 or equivalent.* (4 units)

21. Intermediate Spanish I

The first course in a three-part review of the fundamentals of spoken and written Spanish. Progressive readings and exercises in conversation and composition. Development of an understanding of Hispanic culture. All sections of SPAN 21 contain an integrated, reflective community-based learning component. All students enrolled in SPAN 21 will be automatically enrolled in SPAN 97 (Community-Based Learning Practicum) at the end of the first week of class. Course conducted in Spanish. *Prerequisite: SPAN 3 or three years of high school Spanish.* (4 units)

22. Intermediate Spanish II

A continuation of Spanish 21, this course further develops oral and written communication skills through the study of culture,

grammar, vocabulary, and authentic literature and media. Authentic communicative activities are emphasized inside the classroom and through community based learning outside of the classroom. All sections of SPAN 22 contain an integrated, reflective community-based learning component. All students enrolled in SPAN 22 will be automatically enrolled in SPAN 97 (Community-Based Learning Practicum) at the end of the first week of class. Course conducted in Spanish. *Prerequisite: SPAN 21 or equivalent.* (4 units)

23. Intermediate Spanish III

Spanish 23 completes the intermediate sequence. Students will develop further all the skills of Spanish, including listening, speaking, reading, and writing. Special attention is given to developing an appreciation of Hispanic values and civilization along with making continued progress in the language. All sections of SPAN 23 contain an integrated, reflective community-based learning component. All students enrolled in SPAN 23 will be automatically enrolled in SPAN 97 (Community-Based Learning Practicum) at the end of the first week of class. Course conducted in Spanish. *Prerequisite: SPAN 22, or four years of high school Spanish, or equivalent.* (4 units)

97. Community-Based Learning Practicum

For students enrolled in SPAN 21, 22, or 23 who have an integrated, reflective, community-based learning component as part of the coursework. Includes eight weeks of participatory work in a community agency. *Requirements: two hours per week at agency site over course of the placement.* (1 unit)

UPPER-DIVISION COURSES: SPANISH STUDIES

100. Advanced Spanish I

Continued development of all Spanish skills at an advanced level. Special attention to composition. Systematic introduction to literary analysis. Required of all majors and minors. *Prerequisite: SPAN 23 or equivalent.* (5 units)

101. Advanced Spanish II

Continued development of all Spanish skills and completion of the introduction to literary analysis begun in SPAN 100. Required of all majors and minors. *Prerequisite: SPAN 100 or equivalent.* (5 units)

Admission to the following upper-division courses requires completion of SPAN 100 and 101 or evidence of equivalent preparation.

107. Advanced Spanish Composition

Intensive systematic development of the forms of discourse in Spanish. (5 units) NCX

108. Spanish for Spanish Speakers

Development of the native Spanish speaker's writing and reading skills. *Prerequisite: At least four years of high school Spanish or completion of Intermediate Spanish at the University level.* (5 units) NCX

110. Advanced Spanish Conversation

Advanced work stressing the development of self-expression in Spanish. (5 units) NCX

112. Mexican Culture

Mexican literature, fine arts, history, and social developments, with particular attention to cultural values. (5 units)

113. The Revolution in Mexican Culture

Readings and analysis of the works of Mexican writers and artists that interpret the Mexican Revolution of 1910 and reflect Mexican culture. (5 units)

120. Major Works of Spanish Literature I

Readings in Spanish literature from the early forms of Spanish literature to the end of the 17th century. (5 units)

121. Major Works of Spanish Literature II

Readings in Spanish literature of the 18th and 19th centuries. Continuation of SPAN 120. May be taken separately. (5 units)

122. The Spanish Picaresque Novel

A study of the development of the Spanish picaresque novel and its influence on other European literatures. Key works, analyzed from a socio-historical perspective, include *Lazarillo de Tormes* (1554), *El Guzmán de Alfarache* (1599), and *El Buscón* (1626). (5 units)

123. Siglo de Oro Drama

A study of the Spanish comedia of the *Siglo de Oro.* Particular emphasis on the impact of Lope de Vega and the creation of a national theatre. Literary analysis of the comedias of the most representative Spanish dramatists of the period: Calderón de la Barca, Rojas Zorilla, Tirso de Molina, Ruiz de Alarcón, Guillén de Castro, and Lope de Vega. (5 units)

124. Realism in the 19th-Century Spanish Novel

A study of the decline of Romanticism and the evolution of the Realist movement in 19th-century Spain. Special emphasis on the novels of Fernán Caballero, Alarcón, Galdós, and Valera. (5 units)

125. Colloquium: Spanish Literature and Culture

Topic varies. Study and discussion of selected themes in Spanish Peninsular literature and culture. May be retaken for credit. (5 units) NCX

130. Survey of Latin American Literature I

Latin American literature from the pre-Columbian period to 1888. (5 units)

131. Survey of Latin American Literature II

Latin American literature from 1888 to present. (5 units) NCX

133. Mexican American Literature

Reading, analysis, and discussion of Mexican American literature in its historical context. Emphasis on the novel and short story. (5 units) NCX

135. Colloquium: Latin American Literature and Culture

Topic varies. Reading and discussion of selected themes in Latin American literature and culture. May be retaken for credit. (5 units) NCX

136. Contemporary Latin American Short Story

Examination of the Latin American short story from Quiroga to the present. Representative works reflecting the diverse cultural backgrounds and ideologies of the authors. (5 units)

137. Latin American Cultures and Civilizations

Exploration of the basic factors that have molded and continue to shape the diverse lives and institutions of contemporary Spanish-speaking peoples of the Americas. (5 units)

140. Modern Latin American Literature I

Reading, analysis, and discussion of the works of major Latin American writers of the early 20th century (e.g., Gallegos, Barrios, Prado, and Romero). (5 units)

141. Modern Latin American Literature II

Reading, analysis, and discussion of the works of major Latin American writers of the late 19th and early 20th centuries. Emphasis on the novel. (5 units)

145. Mid-20th-Century Latin American Literature

Reading, analysis, and discussion of the works of major Latin American writers from 1946 to 1962. Carpentier, Yáñez, Fuentes, and others. (5 units)

146. Contemporary Latin American Literature

Reading, analysis, and discussion of the works of major contemporary Latin American writers—García Márquez, Vargas Llosa, and others. (5 units)

147. Cinema and the Novel in Contemporary Latin America

Analysis of novels by major 20th-century Latin American writers and their representation in films. The impact of modernization, industrialization, and nationalistic and populist thought on the emergence of a distinctive film style, thematic trends, and literary genre conventions. (5 units)

148. 20th-Century Latin American Women Writers

Reading, analysis, and discussion of novels and short fiction by major Latin American women writers of the 20th century (e.g., Bombal, Garro, Poniatowska, Allende, Valenzuela, and others). (5 units)

149. Contacts, Clashes, Border Crossings: Hybridity and Liminality in Latin American Cinema

Using film studies, border studies, and Latin-American studies, students will study the processes of hybridity, liminality, and mestizaje in Latin American culture and film. The course will be taught in English to accommodate non-bilingual speakers. This course will be part of the section on Culture and Ideas in the Core Curriculum. (5 units)

150. 20th-Century Spanish Literature I

Major writers of Spain from 1898 to 1936. Particular emphasis on the Generation of 1898. (5 units)

151. 20th-Century Spanish Literature II

A look at some of the best expressions of literary protest during the Franco regime. Reading, analysis, and discussion of works by Camilo José Cela, Ana María Matute, Ramón Sender, and Alfonso Sastre. (5 units)

165. Cervantes: Don Quijote

Cervantes' masterpiece, as a reflection of Spanish society during the Spanish Empire, an exemplar of Baroque art, and a synthesis and culmination of narrative prose. (5 units)

175. History of the Spanish Language

A study of the evolution of the Spanish language from its roots on the Iberian Peninsula to its spread throughout the world. Special attention will be paid to social and political factors that have helped to shape the language in its modern forms. Taught in English. (5 units)

176. Spanish Applied Linguistics II

Detailed scientific analysis of the morphology and syntax of modern Spanish. Contrastive analysis within the Spanish structure system and between the Spanish and English structure systems. Required of all prospective teachers of Spanish. *Prerequisite: SPAN 175.* (5 units)

178. Teaching Methods in Spanish

Practical and theoretical insights into the dynamics of teaching and learning Spanish at the secondary and post-secondary level. (5 units) NCX

179. Technology for Teaching and Learning Spanish

Preparation for the prospective Spanish teacher in the design, use, and evaluation of traditional and current technologies for teaching Spanish language and cultures. (5 units) NCX

195. Spanish Translation I

Skills and strategies involved in the art of translation. A variety of texts (general, historical, cultural, technical, etc.) illustrate the different modes and nuances of translation. Students assigned special translation projects. May be retaken for credit but will only be accepted once toward the Spanish studies major or minor. *Prerequisites: SPAN 101 and permission of the instructor.* (5 units) NCX

196. Spanish Translation II

In this course, a continuation of SPAN 195, students will be translating, analyzing, and preparing for publication hitherto un-translated documents dealing with 19th-century Mexican California. These documents are housed at the History San Jose archives. (5 units)

198. Directed Study

Individually designed programs of advanced study. Normally restricted to seniors who are declared Spanish studies majors or minors and who find themselves in special circumstances. May be taken only once. Courses exempted from challenge may not be taken as directed study. *Prerequisite: Written course outline must be approved by instructor and department chair in advance of registration.* (1–3 units)

199. Directed Reading

Individually designed programs of advanced readings. *Prerequisite: Written permission of the instructor and department chair is required in advance of registration.* (1–5 units) NCX

UPPER-DIVISION COURSES: MODERN LITERATURE AND CULTURE

Note: Knowledge of a foreign language is not necessary for the following comparative course. It cannot be used to fulfill a major or minor requirement in a foreign language or to fulfill the second language requirement.

180. International Cinema

An interdisciplinary course treating film as a medium of cultural expression in China, England (or Australia or Canada), France, Germany, Italy, Japan, Latin America, Russia, and Spain. (5 units)

DEPARTMENT OF MUSIC

Professor Emeritus: Lynn R. Shurtleff
Professors: Hans C. Boepple, Teresa McCollough
Associate Professor: Nancy Wait-Kromm *(Department Chair)*
Assistant Professor: David Pier
Senior Lecturer: Robert Bozina

The Department of Music offers a degree program leading to the Bachelor of Arts in Music as well as a minor in music. A minor in musical theatre is available in conjunction with the Department of Theatre and Dance. The Department of Music is committed to the education of the whole person: intellectual, emotional, physical, and spiritual. The overarching goal of the department is to provide a stimulating artistic and intellectual environment that fosters individual expression and creativity through the study of music and performance within the context of liberal arts studies in a Jesuit university. The Department of Music's curriculum is designed to provide students of diverse backgrounds with the skills necessary to comprehend, perform, and appreciate music's role in human history and its power to enhance the lives of all people. Because individual study and performance is essential to the expression and acquisition of music as a language and art form, private instruction is available to all Santa Clara students in the areas of instrumental, choral, vocal, and composition studies; world music; and recording engineering,

Students who wish to pursue the University Honors Program in music should declare their intention by the beginning of the spring quarter of their sophomore year. Designed as a rigorous course of study for students who wish to attain a higher level of achievement, the honors sequence can be taken in performance, composition, theory, music history or another area of interest in music subject to approval by the department, and presupposes academic as well as musical excellence. A minimum grade point average of 3.0 overall and 3.5 in all music courses, including applied lessons, is required.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in music must complete the following departmental requirements:

- MUSC 1-6
- MUSC 1A-6A,
- MUSC 110 or 111
- One course from MUSC 20, 21, 22, or 26/126
- MUSC 101-104
- One course from MUSC 9, MUSC 110 (if not chosen as a requirement) or 111, (if not chosen as a requirement) or MUSC 114, 115, or another elective approved by the department
- Three years or the equivalent of nine quarters enrolled in private instruction
- Three years or the equivalent of nine quarters in an approved departmental ensemble with experience in at least two different ensembles
- MUSC 33 or private piano instruction (as available) until the keyboard proficiency exam is passed

- MUSC 38 until the departmental technology proficiency requirement is met
- One quarter of MUSC 113
- MUSC 118

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in music:

- MUSC 1-4
- MUSC 1A-4A
- One course from MUSC 20, 21, 22, or 26/126
- Two courses from MUSC 101-104
- One course from MUSC 5, 6, 9, 110, 111 114, 115, or another elective approved by the department
- Two years or the equivalent of six quarters enrolled in private instruction
- Two years or the equivalent of six quarters in an approved departmental ensemble
- MUSC 33 or private piano instruction until the keyboard proficiency exam is passed
- MUSC 38 until the departmental technology proficiency requirement is met
- One quarter of MUSC 113

LOWER-DIVISION COURSES

1. Music Theory I

Beginning course in a comprehensive theory sequence intended for music majors and minors, or students considering a degree in music; covers notation, scales, intervals, chords, rhythm, and meter. Required for musical theatre minor. *Prerequisite: None. Majors and minors with extensive theory background are recommended to take the Musicianship Placement Exam. Students with no keyboard experience are encouraged to take Keyboard Proficiency (MUSC 33).* (4 units)

1A. Aural Skills I

Entry-level course to be taken in conjunction with MUSC 1 to develop aural skills through solfège and rhythmic training, keyboard musicianship, improvisation, and dictation. *Prerequisite: None. Majors and minors with extensive theoretical and/or instrumental or vocal training are recommended to take the Aural Skills Placement Exam. Students with no keyboard experience are encouraged to take Keyboard Proficiency (MUSC 33).* (4 units)

2. Music Theory II

Continuation of Music Theory Sequence. Introduction to basic common practice harmonic progressions: triad relationships, part writing, figured bass, harmonic dictation. *Prerequisite: MUSC 1 or permission of instructor. Students are encouraged to take Keyboard Proficiency (MUSC 33) if they have no keyboard background.* (4 units)

2A. Aural Skills II

Continuing course to be taken in conjunction with MUSC 2 to develop aural skills through solfège and rhythmic training, keyboard musicianship, improvisation, and dictation. *Prerequisite: MUSC 1A or permission of instructor. Students are encouraged to take Keyboard Proficiency (MUSC 33) if they have no keyboard background.* (4 units)

3. Music Theory III

Continuation of Music Theory Sequence. Further instruction in common practice harmony: figured bass and part-writing; dominant and diminished seventh chords and resolutions; harmonic dictation and some score analysis. *Prerequisite: MUSC 2 or permission of instructor. Students are encouraged to take Keyboard Proficiency (MUSC 33) if they have no keyboard background.* (4 units)

3A. Aural Skills III

Continuing course to be taken in conjunction with MUSC 3 to develop aural skills through solfège and rhythmic training, keyboard musicianship, improvisation, and dictation. *Prerequisite: MUSC 2A or permission of instructor. Students are encouraged to take Keyboard Proficiency (MUSC 33) if they have no keyboard background.* (4 units)

4. Music Theory IV / Advanced Harmonic Language

Continuation of Music Theory Sequence. Introduction to chromatic harmony: secondary dominant chords, altered chords; tonicizing and modulation, score analysis, harmonic dictation, and creative application of four-part writing using nonharmonic tones. *Prerequisite: MUSC 3 or permission of instructor.* (4 units)

4A. Aural Skills IV

Continuing course to be taken in conjunction with MUSC 4 to develop aural skills through solfège and rhythmic training, keyboard musicianship, improvisation, and dictation. *Prerequisite: MUSC 3A or permission of instructor.* (4 units)

5. Music Theory V / Form and Analysis

Continuation of Music Theory Sequence. Study of the relationship in Western music between shape/form/structure and harmonic/melodic/thematic content. Music from 1650-1950 will be analyzed in order to achieve this goal, focusing on the primary structures used throughout and since the Common Practice Period. *Prerequisite: MUSC 4 or permission of instructor.* (4 units)

5A. Aural Skills V

Continuing course to be taken in conjunction with MUSC 5, to develop aural skills through solfège and rhythmic training, keyboard musicianship, improvisation, and dictation. *Prerequisite: MUSC 4A or permission of instructor; keyboard proficiency required.* (4 units)

6. Music Theory VI / 20th-Century Theory

Continuation of Music Theory sequence. Study of structures and systems used from the late-19th century through mid-20th century including atonality and serialism. *Prerequisite: MUSC 5 or permission of instructor.* (4 units)

6A. Aural Skills VI

Continuing course to be taken in conjunction with MUSC 6, to develop aural skills through solfège and rhythmic training, keyboard musicianship, improvisation, and dictation. *Prerequisite: MUSC 5A, or permission of instructor; keyboard proficiency required.* (4 units)

7. Music Fundamentals

Intended for nonmajors, musical theatre minors, or students with no theoretical background as a prerequisite to MUSC 1. Introductory course offering both rudimentary music theory (notation, scales, key signatures, intervals, and chords) and beginning aural skills (solfège, rhythmic training, keyboard musicianship, and improvisation). *Prerequisite: None.* (5 units)

8. Introduction to Music

Exploration of musical genres, styles, forms, and techniques through lecture, listening, and performance activities. Designed for nonmajors. (4 units)

9. Music in Pop Culture

Offered as an elective course covering a variety of genres and styles of music in mainstream culture. Previous courses have included "The Beatles" and "History of Rock and Roll," etc. Intended for majors and nonmajors. (4 units)

11A. Cultures and Ideas I

A study of early world civilizations through the medieval era with special emphasis on how each culture found expression in music. (4 units)

12A. Cultures and Ideas II

A study of world civilizations since the 15th century with special emphasis on how each culture has found expression in music and how that music is changing in our contemporary global world. (4 units)

16/116. Music at Noon

This class is organized around the Music at Noon series of concerts and performances. The weekly series brings the opportunity to experience live performances of music from all parts of the world by artists of local, national, and international renown. Students are required to attend all performances and write a reflective paper that summarizes their individual experience. (1 unit)

20. Music in American Culture I

A survey of music generated by America's diverse populations, including Latino, African American, Native American, Cajun, Appalachian, and Asian. (4 units)

21. Music in American Culture II

A historical survey of rock and roll, jazz, and bluegrass, focusing on the varieties of music generated by America's patchwork culture. (4 units)

22. Music of the Caribbean

Introduction to music of the Caribbean Islands (Rumba, Salsa, Reggae, Zouk, etc.) through historical, stylistic, and cultural survey. Spanish, French, and English Caribbean are central with special emphasis on Cuba. Students have the opportunity to learn basic percussion (maracas, clave, guiro, bongo). (4 units)

23. History of the Blues

Examination of the music, lyrics, people, places, and social/cultural conditions that have created the Blues tradition; from its roots in Africa to its development in the United States. (4 units)

26. La Musica y Cultura Cubana

Held in the Republic of Cuba at the Conservatorio Esteban Salas in Santiago de Cuba and the Centro Nacional de Escuelas de Arte in Havana, this course is presented in collaboration with SCU International Programs and offers an intensive and complete immersion in Cuban music, dance, and culture. (4 units)

30. Beginning Piano Class

Introductory instruction in piano in a classroom setting. Class limited to 16 students. Required for musical theatre minor. (4 units)

31. Intermediate Piano Class

Intermediate classroom piano instruction. Class limited to 16 students. *Prerequisite: MUSC 30 or permission of instructor.* (4 units)

33. Keyboard Proficiency Class

Group class designed to prepare students for the Keyboard Proficiency Examination. Designed for music majors, minors, and musical theatre minors. (4 units)

34. Beginning Voice Class

Study and application of basic vocal techniques to develop singing facility. Practical experience in performing. May be repeated for credit. Required for musical theatre minor. (4 units)

35. Intermediate Voice Class

Continuation of MUSC 34, focusing on more advanced approaches to vocal technique, repertoire, and performance. May be repeated for credit. *Prerequisite: MUSC 34 or permission of instructor.* (4 units)

36. Beginning Guitar Class

Examination of essential elements required to play guitar in the classical style, including fundamental principles of technique, sight-reading, pedagogic repertoire, history, and literature. May be repeated for credit. (4 units)

38. Technology Proficiency Class

Practicum course in which students work with an assigned faculty member to learn the current technologies available for professional musicians. Subjects covered in the practicum include the historical framework of technology and music as well as hands-on experience using the computer as a tool for notation and composition. May be repeated for credit. (1 unit)

UPPER-DIVISION COURSES

101. Music History I: Antiquity Through Renaissance

Study of the historical development of Western music from the Middle Ages through the Renaissance. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

102. Music History II: Baroque and Classical

Continuation of Western music survey: Baroque and Classical periods from Florentine Camerata to early Beethoven. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

103. Music History III: Romantic

Continuation of Western music survey from mid-Beethoven to the foundations of 20th-century music. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

104. Music History IV: Modern

Continuation of Western music survey from Debussy to the present. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

109. Lyric Diction

This course provides singers and actors with a vital introduction to the fundamentals of accurate pronunciation in English, French, German, Latin, and Italian language, with an emphasis on lyric (sung) diction. Pronunciation and comprehension of the International Phonetic Alphabet is taught. Required for musical theatre minor, lyric track. (5 units)

110. Instrumentation/Arranging

An exploration of orchestration and arranging for all instruments. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

111. Counterpoint

Detailed study and creation of 2-part contrapuntal music in the 16th-century Renaissance and 18th-century Baroque styles. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

112. Writing about Music

Provides students with instruction and experience in writing about the lively art of music. Through original essays, reviews, synopses, program notes, presentations and research papers, students work to develop better communication skills through the written and spoken word. (5 units)

113. Conducting Lab

Course to develop beginning conducting skills. Focus on basic posture, patterns, and gestures as well as an introduction to choral score and conductor score reading. *Prerequisite: MUSC 4 or permission of instructor. Intended for music majors and minors.* (2 units)

114. Music Composition Seminar

A seminar to encourage, educate, and inspire the production of new musical compositions. Development of musical skills, analysis, and discussion of music from the 1940s to the present will be covered. *Prerequisite: MUSC 4 or permission of instructor.* (5 units)

115. Special Topics in Music

Elective for all music majors and minors organized around various topics and issues of interest to the faculty and students ranging from performance and composition to cultural and historical studies. Previous topics have included Art of the Song, Mozart, Stravinsky, Beethoven, Women in Music, and other topical studies. *Open to nonmajors with permission of instructor only.* (5 units)

118. Directed Study in Pedagogy

A teaching practicum in which junior or senior music majors work with a music faculty member in a classroom, studio, or ensemble framework to assist in the planning and execution of a course. *Music majors only.* (1 unit)

120. Junior Recital

Intended for music majors and minors; 30-45 minute performance of solo repertoire in a variety of styles. Must be sponsored by student's SCU private instructor, approved by the department, and preceded by a recital hearing. (5 units)

120A. Honors Junior Recital

A Junior Recital requiring more advanced achievement with regard to difficulty of literature and mastery of execution and interpretation; 45-60 minutes in length. Must be sponsored by student's SCU private instructor, approved by the department, and preceded by a recital hearing. *Enrollment limited to music majors only.* (5 units)

121. Senior Recital

Intended for music majors and minors; 45-60 minute performance of solo repertoire in a variety of styles. Must be sponsored by student's SCU private instructor, approved by the department, and preceded by a recital hearing. (5 units)

121A. Honors Senior Recital

A Senior Recital requiring more advanced achievement with regard to difficulty of literature and mastery of execution and interpretation; 60-75 minutes in length. *Enrollment limited to music majors only.* (5 units)

123. Honors Thesis in Music Theory

The scope and quality must surpass those of a senior level essay, demonstrating significant research, arguments cogently articulated, and conclusions formulated with clarity and elegance. *Prerequisite: MUSC 6 or permission of department chair.* (5 units)

124. Honors Thesis in Music History

The scope and quality must surpass those of a senior level essay, demonstrating significant research, arguments cogently articulated, and conclusions formulated with clarity and elegance. *Prerequisite: MUSC 101–104.* (5 units)

125. Honors Thesis in Composition

Must demonstrate an advanced level of compositional technique, be of suitable length and complexity, and demonstrate sophisticated handling of musical materials and skillful instrumentation. *Prerequisite: Six quarters of private composition lessons and MUSC 6, or permission of department chair.* (5 units)

126. La Musica y Cultura Cubana

Held in the Republic of Cuba at the Conservatorio Esteban Salas in Santiago de Cuba and the Centro Nacional de Escuelas de Arte in Havana, this course is presented in collaboration with SCU International Programs and offers an intensive and complete immersion in Cuban music, dance, and culture. (5 units)

PERFORMING ENSEMBLE COURSES

Note: All ensembles may be repeated for credit. Students should enroll with appropriate lower- or upper-division course number, depending on status. Ensembles marked with an asterisk (*) meet the ensemble requirement for music majors and minors.

*40/140. University Orchestra**

Preparation and concert performance of major works of orchestral literature. Performing Arts Grants are available to qualified students. *By audition only.* (2 units)

*42/142. Concert Choir**

A 52–60 voice mixed ensemble of select singers that perform a wide variety of a cappella and accompanied secular and sacred choral music from every period in music history through the present day. Emphasis is on a comprehensive survey of choral literature through performance, as well as development of choral tone, blend, diction, and sight singing skills. Performing Arts Grants are available to qualified students. *By audition only.* (2 units)

*43/143. Chamber Singers**

An 18–24 voice mixed ensemble of highly select advanced singers. Repertoire includes a variety of sophisticated chamber choral music from the Renaissance to the present day. Performing Arts Grants are available to qualified students. *By audition only.* (2 units)

44/144. Choral Proficiency

Designed as an introductory/fundamentals course for students with no previous choral singing experience. Focus is on four areas: basic music theory (including terminology, notational and choral score reading), sight singing, vocal production, and vocal/choral diction. Course is taught in five 30-minute individual private sessions arranged with the instructor. Can be taken in conjunction with concert choir, but enrollment in concert choir is not required. Enrollment is limited to 8 students per quarter. *By permission of instructor only.* (1 unit)

*45/145. Jazz Ensemble**

Preparation and performance of jazz literature for large ensemble. *By audition only.* (1 unit)

*46/146. Jazz Combo Workshop**

Focus on jazz improvisation, techniques, and theory in small group performance. *By audition only.* (0.5 units)

*47/147. Guitar Ensemble**

Preparation and performance of ensemble literature for classical and jazz guitar. *Open to selected students with instructor permission.* (2 units)

48/148. Chamber Music Ensemble

Preparation and performance of instrumental chamber music from the standard repertoire. Students are encouraged to form their own small ensembles (strings, winds, brass, etc.) and seek weekly coaching from an approved faculty member. *By permission of instructor only.* (1 unit)

*49/149. Son Santa Clara**

Combining the musical cultures of Africa and Spain, Son Santa Clara is dedicated to the performance and practice of the music of Cuba's eastern provinces. Nengon, Quiriba, and Rumba round out the musical forms that this ensemble rehearses. Many students involved with Son Santa Clara have participated in Santa Clara's International Cuba program. *By permission of instructor only.* (2 units)

*50/150. Opera Theatre**

Instruction in operatic technique and literature; performance, score-reading, and solo/ensemble work in preparation of a major performance. *By audition only.* (3 units)

*51/151. Opera Studio**

Study and preparation of the coursework for Opera Theatre in a workshop setting. *By audition only.* (2 units)

*52/152. World Percussion Ensemble**

African and/or African influenced percussion and rhythms applied to traditional and nontraditional instruments, movement, and voice in an ensemble setting. *Open to all students.* (1 unit)

53/153. World Music Lab

Students enroll in this course to rehearse various world music styles and study nonorchestral instruments. Students are encouraged to form their own small ensembles dedicated to a particular region or style of music such as Latin America (samba, tango, mariachi), the Caribbean (son, steel pan, calypso), Asia (taiko, guzheng, gamelan), rural America (bluegrass, blues), Europe (celtic), etc. Students receive weekly coaching from an approved faculty member. *By permission of instructor only.* (1 unit)

PRIVATE INSTRUCTION

The Department of Music offers private instruction lessons in the following areas:

Voice

Musical Theatre Voice

Piano

Jazz Piano

Organ

Harp

Harpsichord

Piano Accompanying

Violin

Viola

Violoncello

String Bass

Guitar

Jazz Guitar

Electric Bass Guitar

Flute

Oboe

Clarinet

Bassoon	***World Music Instruction***
Saxophone	***World Percussion***
French Horn	***Composition***
Trombone	***Electronic Composition***
Tuba/Euphonium	***Instrumental Conducting***
Trumpet	***Choral Conducting***
Percussion	***Recording Engineering***

Note: Private instrumental, composition, and vocal lessons are available to all Santa Clara students. Students may enroll in 1 hour, 45-minute, or 30-minute lessons depending upon their status as a major, minor, or elective student. A full description of the private instruction protocols is available in the Music Department Student Handbook. Nine private lessons are given each quarter. All students taking lessons are required to participate in a jury. Private lessons may be repeated for credit and are open to nonmajors by audition only and on a space-available basis. Priority registration is given to music majors, minors, musical theatre minors, and students enrolled in departmental ensembles or preparing for a junior or senior recital.

DEPARTMENT OF PHILOSOPHY

Professor Emeritus: James W. Felt, S.J.
Professors: Philip J. Kain *(Department Chair),* Michael Meyer, William J. Prior
Associate Professors: Christopher B. Kulp, Scott LaBarge, William A. Parent, Mark A. Ravizza, S.J.
Assistant Professor: Shannon Vallor
Senior Lecturer: Lawrence Nelson

The Department of Philosophy offers a degree program leading to the Bachelor of Arts in Philosophy. Philosophy inquires directly into the relation of human beings to the world: what we are, how we know, what values are, how we live. Worth pursuing for its own sake, philosophical inquiry also promotes analytical thinking and precise expression and, thus, is excellent undergraduate preparation for a number of professional careers, such as law, government, writing, social work, and computer programming. To qualify for honors in philosophy, the major ordinarily must have a 3.5 grade point average in philosophy courses and complete PHIL 197 with a grade of A- or better.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in philosophy must complete the following departmental requirements:

- Two lower-division courses from PHIL 2 – 10, 11 – 13, 60 – 89

- PHIL 25 or 27, 50, 51, 52, 53
- Two courses from different historical periods: PHIL 131 (ancient), PHIL 132 (Medieval), PHIL 133 (modern), and PHIL 135, 136, 137 (contemporary)
- One course from PHIL 120 – 129
- One course from PHIL 125 or 140 – 149
- Four additional upper-division courses from PHIL 109 – 199

Emphasis in Pre-Law

The pre-law emphasis in philosophy is intended to provide the skills of analytic reasoning and conceptual investigation necessary for law. Philosophical research hones the techniques of careful argumentation and logically disciplined reasoning essential to the legal analysis of cases and statutes. Also, emphasis on ethics courses will help prepare students for the study and analysis of normative issues. The pre-law emphasis may be taken as part of a philosophy major or minor, or the courses may be taken alone. Requirements for the pre-law emphasis include:

- One course from PHIL 25, 27, 29, or 152
- One course from PHIL 111, 113, or 154
- One course from PHIL 2, 3, 4, 5, 6, 7, 8, 9, 10, 80, 109, 110, 112, 115, 118, 119, 120, 121, 122, 123, 124, 125, 129, 136, or 142
- Two additional courses from those in the three lists above

Emphasis in Ethics

The ethics emphasis in philosophy is intended to provide students with a broad understanding of ethical theory and the conceptual analysis of moral problems, including matters of social justice central to the Jesuit educational mission, and thus with the ability to reflect on their own ethical decisions and on their role as morally responsible members of the human community. The ethics emphasis may be taken as part of the philosophy major or minor, or the courses may be taken alone. Requirements for the ethics emphasis include:

- One lower-division ethics class from PHIL 2 – 10
- Two ethical theory courses from PHIL 120 – 129
- Two courses from the following: PHIL 109 – 119, PHIL 154. An ethics course taught in another department may be substituted with the permission of the chair of the Department of Philosophy.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in philosophy:

- PHIL 51 and 52; 25 or 27
- Four approved upper-division courses; PHIL 53 may be substituted for one upper-division course

LOWER-DIVISION COURSES: ETHICS

2. Introduction to Ethics

Consideration of the traditional theoretical questions posed in moral philosophy: standards that determine the morality of an action, the motives and consequences of an act, the good life. Authors studied may include Plato, Aristotle, Aquinas, Bentham, Mill, Kant. (4 units)

3. Ethical Issues in Computing

Normative inquiry into the use of computers. Topics may include information privacy, peer-to-peer file sharing, end-user copying, software as intellectual property, hacking, online communities, safety-critical software, verification, and encryption. (4 units)

4A. Ethics and Gender

Formal inquiry into normative ethics. Emphasis on ethical principles and theories, as well as the application of these to issues essentially intertwined with concepts of sex and gender as they apply to both men and women. Special attention to gender theory and feminism. Topics studied may include pornography, sexuality, heterosexual/homosexual marriage and family life, domestic violence and rape, abortion and reproduction, fashion and appearance, gender discrimination, sex-based affirmative action, and sexual harassment. (4 units)

4B. Ethics and Gender in Film

Formal inquiry into normative ethics. Emphasis on ethical principles and theories as they relate to concepts of gender and sex applicable to both males and females. In addition to written texts about ethics and gender, both dramatic and documentary films will be studied to illustrate how gender is both experienced by men and women and portrayed in the lived world. Topics studied may include sexuality and sexual orientation, male and female gender roles, heterosexual/ homosexual marriage and family life, sexual violence, transsexuality, abortion and reproduction, and gender discrimination. Films studied may include *Southern Comfort, Boys Don't Cry, daddy and papa, Sliding Doors, The Brandon Teena Story, If These Walls Could Talk, The Laramie Project,* and *Thirteen.* (4 units)

5. Ethical Issues in Society

Formal inquiry into normative ethics. Special attention to general ethical principles and to the practical application of these principles to current ethical issues in society. Topics may include the concepts of freedom, obligation, value, rights, justice, virtue, and moral responsibility, as applied to issues like abortion, punishment, economic distribution, racial and sexual discrimination, sexuality, political obligation, nuclear war, and pornography. (4 units)

6. Ethical Issues in Business

Formal inquiry into normative ethics. Special attention to general ethical principles and the application of these principles to current moral issues in business. Topics may include truth in advertising, corporate social responsibility, affirmative action, capitalism, government regulation, quality of work-life, environmental and resource issues, and ethical codes of conduct. (4 units)

7. Ethical Issues in Medicine

Formal inquiry into normative ethics. Special attention to general ethical principles and the application of these principles to current moral issues in medicine and the health sciences. Topics may include the definition of death, informed consent, distribution of health care, euthanasia, genetic manipulation, artificial conception, prolongation of life, and organ transplants. (4 units)

8. Ethical Issues in Politics

Formal inquiry into normative ethics. Emphasis on moral issues in political theory. Possible topics include the concepts of rights, justice, dignity, equality, personhood, desert, retributivism, and utility. Issues discussed may include alienation, individualism, community, discrimination, capital punishment, sexual equality, civil disobedience, revolution, and world hunger. (4 units)

9. Ethical Issues and the Environment

Formal inquiry into normative ethics. Emphasis on moral issues and the environment. Topics include animal rights, anthropocentrism, cost-benefit analysis, human rights, interspecies justice, land (use and value), population control, rights (of future generations and natural objects), values (moral and aesthetic) and preferences, wildlife protection, wilderness. (4 units)

10. Ethical Issues in the Law

Formal inquiry into normative ethics. Emphasis on moral issues and concepts in contemporary legal debates such as the rule of law, the duty to aid, the relationship between law and ethics, freedom of speech, the right to die, criminally charging minors as adults, the legalization of drugs, obscenity and indecency, the moral justification for punishment, including capital punishment, and state regulation of marriage. (4 units)

LOWER-DIVISION COURSES: CULTURES AND IDEAS

11A. and 12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in philosophy and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address autonomy, personhood, community, justice, human dignity, law, the self, religion, cosmology, and other topics. (4 units each quarter)

LOWER-DIVISION COURSES: LOGIC AND REASONING

25. Informal Logic

Introduction to the art of logical reasoning. Emphasis on the ability to recognize common fallacies of argumentation. (4 units)

27. Introduction to Formal Logic

Introduction to the study of deductive inference, including traditional and modern techniques. (4 units)

29. Reasoning and Interpretation in Law

Introduction to basic concepts in logic and argumentation as well as to methods of reasoning, argumentation, and interpretation that commonly appear in American law. Examination of arguments; deduction and induction; varieties of meaning; definitions and their purposes; informal fallacies; categorical syllogisms; ordinary language arguments; enthymemes; analogy in legal and moral reasoning; causality; probability; statistical reasoning; authority; causality; precedent and stare decision; interpretations and reasoning from statutory rules; reasoning from case law; nature and legitimacy of judicial adjudication; methods for analyzing cases; explanatory and justifying reasons; conflict and legal rules. (4 units)

LOWER-DIVISION COURSE: METAPHYSICS AND EPISTEMOLOGY

50. Knowledge and Reality

Introduces two central areas of philosophy—epistemology and metaphysics—through the study of several fundamental problems in those areas. Problems that may be studied include the existence of God, the relation between mind and body, freedom of the will, the nature and possibility of knowledge, and the relation between language and reality. Required of all philosophy majors and normally taken during the sophomore year. (4 units)

LOWER-DIVISION COURSES: HISTORY OF PHILOSOPHY

51. History of Philosophy: Classical and Medieval Beginnings of Western Philosophy

Representative philosophers of the Greek and Medieval traditions, with attention to their historical milieu and their relevance to contemporary thought. (4 units)

52. History of Philosophy: Early Modern Principal Fashioners of the Modern Mind

17th- and 18th-century philosophers studied in the historical context of their times with attention to their impact on the present. (4 units)

53. History of Philosophy: Modern and Contemporary

Introduction to the closer roots of modern philosophy, from the critical revolution of Kant to some of the dominant currents of the 20th century. *Prerequisite: PHIL 52 strongly recommended.* (4 units)

LOWER-DIVISION COURSES: SCIENCE, TECHNOLOGY, AND SOCIETY

80. Science, Technology, and Society

An investigation of the philosophical questions surrounding the social impact of science and technology, exploring issues such as technological determinism, the impact of technology on moral life, and the complex relationship between science, technology, and modern culture. Special attention may be given to the social and ethical implications of specific technologies such as robotics, nanotechnology, neuroimaging, and/or technologies for digital communication. (4 units)

Note: The normal prerequisite for all philosophy upper-division courses is upper-division standing.

UPPER-DIVISION COURSES: ETHICS

109. Ethics and the Environment

Formal inquiry into normative ethics. Investigation of environmental issues from the point of view of classical ethical perspectives and consideration of how questions about the moral value of the environment provide new challenges to such classical theories. Topics may include animal rights, human rights, the rights of future generations, the rights of nature, anthropocentrism, interspecies justice, land (use and value), wilderness, and values and preferences. (5 units)

110. Ethics in the Health Professions

Formal inquiry into applied ethics. Emphasis on moral issues encountered by members of the health professions. Topics may include the formulation of professional ethical standards and the examination of moral dilemmas in medicine, psychological counseling, and other areas of health care. (5 units)

111. Bioethics and the Law

Bioethics (normative ethics as applied to medicine and the health care professions, the life sciences, and biotechnology) is partially constituted by legal norms and values. Exploration of the evolving relationship between law and bioethics, as well as the substantive law and ethics of selected topics by studying course cases and bioethical texts. Topics studied may include the definition of death, informed consent, the physician-patient relationship, euthanasia /assisted suicide and the law of criminal homicide, advance directives for health care, confidentiality, involuntary civil commitment for mental illness, regulation of research involving human subjects, the use of nonhuman animals in biomedical research, the legal and moral status of prenatal humans, parental control over the medical care of minor children, tort law and medical practice, and state licensure of health care professionals. (5 units)

112. Ethics in Management

Formal inquiry into applied ethics. Emphasis on moral issues encountered by managers. Topics may include the role of ethical principles in business and ethical dilemmas raised by the management and administration of business organizations, such as conflicts of interest, organizational politics, commercial bribery, whistle-blowing, labor-management conflicts, and consumerism. (5 units)

113. Ethics and Constitutional Law

Exploration of how the constitutional rights and interests of individuals and groups of individuals can be understood and justified by moral and social/political philosophy. Particular constitutional subjects to be studied may include 4th Amendment search and seizure, obscenity and pornography, equal protection, gender discrimination, freedom of speech, freedom of association, free exercise of religion, State establishment of religion, discrimination against gays and lesbians, privacy and personal autonomy, privacy and reproductive freedom, and substantive due process. Readings typically consist of Supreme Court cases. (5 units)

115. Feminism and Ethics

Exploration of theories of feminism, patriarchy, and gender, and of ethics as applied to the contemporary experience and social situation of women. Topics may include equality, affirmative action, comparable worth, pornography, sexuality, reproductive technologies, maternal-fetal relations, rape and domestic violence, female body image, cosmetic surgery, "alternative" families, militarism, and environmentalism. (5 units)

116. Ethics, Authenticity, Freedom, and Vocation

An inquiry into the moral ideal of being an authentic self, the meaning and moral significance of freedom, and the relation of these to vocation understood as an individual's choice of major projects in the world, as response to the multiple calls of that which is outside of the self, and as the common experience of being summoned by a specific person seeking help or attention and of having to respond to this summons. The central premise of the course is that anyone who asks the classic questions of vocation (What am I good at doing? What am I passionate about doing? What are my values? Where do I find meaning of life? Where do I and the needs of the world and other persons intersect?) should reflect systematically on what it means to be an authentic self and what it means to be an agent with freedom of choice, as well as on the basic moral values that attach to authentic freedom. (5 units)

118. Ethics and Warfare

Historical and contemporary approaches to the ethical issues that arise in warfare. (5 units)

119. Special Topics in Applied Ethics

Selected philosophical problems in applied ethics studied at an advanced level. (5 units)

UPPER-DIVISION COURSES: ETHICAL THEORY

120. Ethical Theory

Examination of major philosophers or issues in moral and social philosophy. Topics may include dignity, moral rights and obligations, justice, moral relativism, virtue, the good, and happiness. (5 units)

121. Classic Issues in Ethics

Exploration of the fundamental questions of ethics through close study of some of the great works of moral philosophy, such as Plato's *Republic,* Aristotle's *Nicomachean Ethics,* Kant's *Groundwork,* and Mill's *Utilitarianism.* (5 units)

122. Political Philosophy and Ethics

Moral issues in political philosophy, especially traditional ethical justifications for political authority. Topics may include theories of political authorization and contract theory, rights, liberty, equality, justice, community, revolution, civil disobedience, and others. Specific variations include 122A (Classical and Modern), 122B (Contemporary). (5 units)

123. Marx and Ethics

Examination of Marx's ethical thought in the context of traditional ethical theory (Aristotle, Kant) and in relationship to his political views and philosophy of history. Topics may include alienation, the human essence, the individual, community, needs, freedom, equality, rights, and justice. (5 units)

124. Virtue Ethics

Exploration of various basic issues in ethics, such as friendship, courage, or compassion, from the point of view of virtues or (moral) character. Close study of classic authors—for example, Aristotle—as well as contemporary writers on virtue ethics. (5 units)

125. Moral Epistemology

An investigation into the foundations of ethics: principally concerned with (1) the nature of ethics, and (2) the nature and possibility of moral knowledge. Issues to be discussed may include cognitivism and noncognitivism in ethics, moral relativism, moral realism, and moral skepticism. *Prerequisites: PHIL 50 and one ethics course, or permission of department chair.* (5 units)

129. Special Topics in Ethical Theory

Selected philosophical problems in ethical theory studied at an advanced level. (5 units)

UPPER-DIVISION COURSES: HISTORY OF PHILOSOPHY

131. Ancient Philosophy

Study of one major philosopher or philosophical issue (such as substance, causation, or virtue) from the ancient period. Specific variations include 131A (Socrates), 131B (Plato), 131C (Aristotle), and 131D (Love and Relationship in Classical Antiquity). *Prerequisite: PHIL 51 or permission of department chair.* (5 units)

132. Medieval Philosophy

Study of one major philosopher or philosophical issue (such as universals, existence and the nature of God, or free will) from the Medieval period. Specific variations include 132A (Augustine) and 132B (Aquinas). *Prerequisite: PHIL 51 or permission of department chair.* (5 units)

133. Modern Philosophy

Study of one major philosopher or issue (such as mind and body, skepticism and knowledge, or causation) from the modern period. Specific variations include 133A (Hume), 133B (Kant), 133C (Hegel), and 133D (Nietzsche), 133E (Kierkegaard). *Prerequisite: PHIL 52 for 133A; PHIL 53 for 133B–E or permission of department chair.* (5 units)

134. Skepticism

Study of the problem of skepticism from its origin in ancient Greece to the present day. Considers both skeptical positions and views critical of skepticism. Readings may include Sextus Empiricus, Descartes, Hume, and Wittgenstein. *Prerequisite: PHIL 51 or 52 or permission of department chair.* (5 units)

135. Existentialism

General introduction to existentialism in its analysis of the basic structures of human existence, particularly freedom, and in its major thinkers, such as Kierkegaard, Nietzsche, Camus, Sartre, and de Beauvoir. *Prerequisite: PHIL 53 or permission of department chair.* (5 units)

136. Analytic Philosophy

Examination of the major currents in 20th-century Anglo-American philosophy. Philosophers studied may include Frege, Russell, Carnap, Moore, Wittgenstein, and Austin; movements may include logical positivism and ordinary-language philosophy. *Prerequisites: PHIL 50, PHIL 27 recommended; or permission of department chair.* (5 units)

137. Contemporary European Philosophy

Selected topics from 20th-century continental philosophy. (5 units)

138. Phenomenology

An introduction to the 20th-century phenomenological tradition of philosophy, addressing the foundational works of Husserl, Heidegger, and Merleau-Ponty as well as contemporary developments in the field. (5 units)

139. Special Topics in the History of Philosophy

Selected philosophical problems in history of philosophy studied at an advanced level. (5 units)

UPPER-DIVISION COURSES: METAPHYSICS AND EPISTEMOLOGY

140. Philosophy of Science

Exploration of selected philosophic questions that arise in contemporary science, especially physics. Topics include the nature of scientific knowing, the roles of theory and experiment in scientific progress, the sense in which theoretical entities like quarks and electrons can be said to be "real," and the paradoxes of quantum mechanics. Special attention will also be given to the complex relationship between science and society, and the role of values in scientific inquiry. *Prerequisite: PHIL 50 or permission of the department chair.* (5 units)

141. Metaphysics

Examination of major issues in metaphysics. Topics may include the nature and possibility of metaphysics, free will and determinism, the mind/body problem, personal identity, and metaphysical issues arising in science. *Prerequisites: PHIL 25 or 27 and 50 or permission of department chair.* (5 units)

142. Theory of Knowledge

Examination of major issues in the theory of knowledge. Topics may include justification of belief, a priori knowledge, perception, and theories of truth. *Prerequisites: PHIL 50, PHIL 27 recommended; or permission of the department chair.* (5 units)

143. Analytic Metaphysics

Philosophical investigation of the free-will problem. Discussion of concepts of freedom, fate, causation, and God. *Prerequisite: PHIL 50 or permission of department chair.* (5 units)

144. Philosophy of Mind

Examination of issues relating to the existence and nature of mind and its relation to body. *Prerequisite: PHIL 50 or permission of department chair.* (5 units)

145. Wittgenstein

A study of the philosophy of the 20th-century philosopher Ludwig Wittgenstein, focusing on his logical theory, metaphysics and epistemology, from his Tractatus Logico-Philosophicus to his Philosophical Investigations. *Prerequisite: Philosophy 50 or permission of department chair.* (5 units)

149. Special Topics in Metaphysics and Epistemology

Selected philosophical problems in metaphysics and/or epistemology studied at an advanced level. *Prerequisite: PHIL 50 or permission of department chair.* (5 units)

UPPER-DIVISION COURSES: OTHER

150. Philosophy of Religion

Philosophical inquiry, based on both classical and contemporary views, as to whether the existence of God can be rationally demonstrated, whether it is compatible with evil, how human beings relate to God, the nature of faith, and the nature of religious language. (5 units)

151. Philosophical Topics in Literature and Film

This course focuses on the aesthetic and ethical dimensions of English language films, from the silent era to the present. We will discuss at least some of the following topics: What makes a good film, screen play, or novel, "good"? This will include discussion of the aesthetic and ethical values that contribute to the quality of film and literature. What is the role of artistic intention in understanding and evaluating film (including the "auteur theory" account of cinematic creation and the "intentional fallacy"). What role do various types of interpretation and genre play in understanding and evaluating the quality of film and literature? What, if any, is the proper place of various types of censorship, from the "production code" of the 1930s to the MPAA rating system in place today? (5 units)

152. Symbolic Logic

Study of various topics in modern symbolic logic. *Prerequisite: PHIL 27 or permission of department chair.* (5 units)

154. Philosophy of Law

Proper limits and uses of the criminal law in regulating human behavior. (5 units)

155. Aesthetics

Philosophical examination of the historical development of the concepts of taste and beauty. (5 units)

197. Senior Research Thesis

Creation of a carefully researched and scholarly paper, under the active direction of a selected member of the department's staff. Of particular value to senior students who intend to pursue graduate studies. *Prerequisites: Previous arrangement with instructor and department chair.* (5 units)

199. Directed Research

Tutorial work with demanding requirements for advanced students in particular problem areas not otherwise accessible through courses. *Prerequisites: Previous arrangement with the instructor and department chair.* (5 units)

DEPARTMENT OF PHYSICS

Professors Emeriti: William T. Duffy Jr., Carl H. Hayn, S.J.
Professor: Richard P. Barber Jr. *(Department Chair),* Betty A. Young
Associate Professors: John T. Birmingham, Philip R. Kesten
Assistant Professors: Guy Ramon, Christopher Weber

The Department of Physics offers major programs of lecture and laboratory instruction leading to the Bachelor of Science in Physics and the Bachelor of Science in Engineering Physics. The department also provides an academic minor in physics and required and elective courses for students majoring in other fields.

The usual career goal of a physics major is professional scientific employment in industry or government, by a university, or in secondary schools teaching physical science. The undergraduate major program in physics is appropriate preparation for graduate study in physics, astronomy and astrophysics, biophysics, environmental science, geological science and geophysics, medical physics and medicine, patent law, physical science teaching, and oceanography.

The engineering physics major is particularly appropriate for the applied science student who intends to do research and development and/or attend graduate school in physics, applied physics, or various engineering disciplines. The engineering physics major covers a broad spectrum of courses in mathematics, engineering, and physics. This program emphasizes, to a greater extent than the traditional engineering major, the physics fundamentals that are applicable to new technologies as well as to the more established ones.

Research in the department currently is funded by the National Science Foundation, NASA, Research Corporation, and the Department of Energy. Majors in physics, engineering, and engineering physics participate in faculty research projects through PHYS 198 (Undergraduate Physics Research) and PHYS 199 (Directed Readings in Physics). Advanced students also have opportunities for part-time employment assisting faculty in laboratory and related teaching activities.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree in Physics, students majoring in physics or engineering physics must complete the following departmental requirements:

Major in Physics

- CHEM 11 and 12
- MATH 11, 12, 13, 14, 22
- CSCI 10
- PHYS 31, 32, 33, 34, and associated labs
- PHYS 70, 103, 104, 111, 112, 113, 116, 120, 121, 122, 141, 151, and associated labs

Major in Engineering Physics

- CHEM 11 and 12
- MATH 11, 12, 13, and 14
- AMTH 106 or MATH 22
- One course from CSCI 10, COEN 10, COEN 11, or COEN 44
- PHYS 31, 32, 33, 34 (and associated labs), 70, 103, 111, 112, 121
- One upper-division physics elective chosen from PHYS 104, 113, 116, 122, 141, or 151
- PHYS 120 or MECH 121
- At least four courses from these options: MECH 15, ELEN 110, ELEN 115, MECH 143, COEN 21, MECH 122 or 132 or 266
- A cluster of five technical courses in one of several special emphasis areas including computational, electronics, materials science, solid state, mechanical

Physics 116 is taught as a capstone and, although not required, is highly recommended for engineering physics majors.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in physics:

- PHYS 31, 32, 33, and 34 (and associated laboratories)
- Four approved upper-division courses, excluding PHYS 190, 198 and 199

LOWER-DIVISION COURSES

1. Hands-On Physics!

How do scientists know what they "know?" Notions of scientific theory and experimentation are reviewed. Error analysis and instrumentation are emphasized. Includes student-designed, peer-reviewed group projects. (4 units)

2. Introduction to Astronomy: The Solar System

An introduction to astronomy with a particular focus on the origin and evolution of the solar system, and planets and their satellites. Topics include a brief history of the science of astronomy, telescopes and observational methods, gravitation, spectra and the sun, asteroids, comets, astrobiology, and searches for new planetary bodies and extraterrestrial life. Special emphasis is given to the Earth as a planet, with comparisons to Mars and Venus. Fall and spring quarters. Students should be familiar with arithmetic and basic algebra. Evening observational lab meets five times during the quarter. (4 units)

3. Introduction to Astronomy: The Universe

An introduction to astronomy with a particular focus on the origin and evolution of the universe, galaxies and stars. Topics include a brief history of the science of astronomy, telescopes and observational methods, gravitation, spectra and the sun, black holes, nebulae, the big bang, and the expansion and ultimate fate of the universe. Special emphasis is given to theories of the cosmos from Stonehenge to the present. Fall and spring quarters. Students should be familiar with arithmetic and basic algebra. Evening observational lab meets five times during the quarter. (4 units)

4. The Physics of Dance

An exploration of the connection between the art of dance and the science of motion with both lecture/discussion sessions and movement laboratories. Topics include: mass, force, equilibrium, acceleration, energy, momentum, torque, rotation, and angular momentum. Movement laboratory combines personal experience of movement with scientific measurements and analysis, in other words: "dance it" and "measure it." This is a lab science, not a dance technique course. *Also listed as DANC 4.* (4 units)

8. Introduction to Space Sciences

An introduction to space exploration and how observations from space have influenced our knowledge of Earth and of the other planets in our solar system. This is synthesized within the context of the field of astrobiology, an interdisciplinary study of the origin of the Universe and the evolution and future of life on Earth. (4 units)

9. Introduction to Earth Science

Overview of geology and its significance to man. Earthquakes, volcanism, plate tectonics and continental drift, rocks and minerals, geologic hazards, mineral resources. Emphasis on basic geologic principles and the role of geology in today's world. (4 units)

11. General Physics I

Vectors. Newtonian law of motion. Law of gravitation. Work. Kinetic and potential energy. Momentum and impulse. Rotational energy and momentum. Kepler's Laws. Torque. Equilibrium. Elastic deformation of solids. Density and pressure of fluids. Bernoulli's principle. Buoyant forces. Surface tension. *Prerequisite: MATH 11 or permission of the instructor. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (4 units) NCX

12. General Physics II

Temperature scales. Thermal expansion of solids and liquids. Thermal energy. Heat transfer. Specific heat. Mechanical equivalent of heat. Work and heat. Laws of thermodynamics. Kinetic theory of gases. Ideal gas law. Entropy. Vibration and wave motion. Hooke's law. Electric fields and potential. Ohm's law. Potential difference. Electric potential. Energy stored in capacitors. Electric current. Resistance and resistivity. Electric energy and power. Kirchhoff 's Rules. RC circuits. Lab. *Prerequisite: PHYS 11. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units) NCX

13. General Physics III

Magnetism. Magnetic force on a current carrying conductor. Torque on a current loop. Motion of a charged particle in a magnetic field. Ampere's Law. Magnetic field of a solenoid. Induced EMF. Faraday's Law of Induction. Lenz's Law. Self inductance. RCL series circuit. Power in an AC circuit. Resonance. Transformers. Optics: reflection, refraction, mirrors, and lenses. Total internal reflection. Diffraction. Young's double slit interference. Polarization. Optical Instruments. Relativity. Wave-particle duality. Photoelectric effect. X-rays. Pair production and annihilation. Bohr Atom. Spectra. Uncertainty principle. Quantum numbers. Radioactivity. Nuclear particles and reactions. Lab. *Prerequisite: PHYS 12. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units) NCX

19. General Physics for Teachers

A general physics course designed for future teachers. Topics covered include mechanics, properties of matter, heat, sound, electricity and magnetism, light, atomic and nuclear physics, and astronomy. (4 units)

31. Physics for Scientists and Engineers I

Measurement. Vectors. Straight-line kinematics. Kinematics in two dimensions. Laws of inertia, mass conservation, and momentum conservation. Center-of-mass and reference frames. Force. Newtonian mechanics and its applications. Work and kinetic energy. Potential energy and energy conservation. Rotational dynamics. Statics. *Prerequisite: MATH 11. (MATH 11 may be taken concurrently.) The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (4 units) NCX

32. Physics for Scientists and Engineers II

Simple harmonic motion. Gravitation. Kepler's Laws. Fluids. Waves, sound. Interference, diffraction, and polarization. Thermodynamics. Includes weekly laboratory. *Prerequisites: MATH 12 and PHYS 31. (MATH 12 may be taken concurrently.) The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units) NCX

33. Physics for Scientists and Engineers III

Electrostatics. Gauss's Law. Potential. Capacitance. Electric current. Resistance. Kirchhoff's rules. DC circuits. AC circuits. Magnetic force. Electromagnetic induction. Includes weekly laboratory. *Prerequisite: PHYS 32. The PHYS 31/32/33 sequence and the PHYS 11/12/13 sequence cannot both be taken for credit.* (5 units) NCX

34. Physics for Scientists and Engineers IV

Special relativity. Historical development of modern physics: black body radiation, photoelectric effect, Compton scattering, X-rays, Bohr atom, DeBroglie wavelength, Heisenberg uncertainty principle. Quantum waves and particles. Schrödinger equation. Nuclear structure and decay. Particle physics. Semiconductors. Includes weekly laboratory. *Prerequisite: PHYS 33.* (5 units) NCX

70. Electronic Circuits for Scientists

Linear electric circuits. DC analysis, network theorems, phasor AC analysis. Diode circuits. Physics of p-n junction. Junction diodes, field-effect devices, bipolar junction transistors. Elementary amplifiers. Small-signal device models. Logic gates, digital integrated circuits, Boolean algebra, registers, counters, memories. Operational amplifier circuits. Linear amplifier bias circuits. Includes weekly laboratory. *Prerequisite: PHYS 33.* (5 units)

UPPER-DIVISION COURSES

103. Analytical and Numerical Methods in Physics

Review of linear algebra and matrix theory. Basic elements of programming in MATLAB. Linear systems of equations: coupled harmonic oscillators. Special functions. Numerical integration. Ordinary and partial differential equations. Spectral analysis (discrete Fourier transform). Selected applications. *Prerequisite: MATH 22 or AMTH 106.* (5 units)

104. Analytical Mechanics

Selected topics in classical dynamics such as central force motion, coupled oscillations, dynamics of rigid bodies. *Prerequisite: PHYS 103.* (5 units)

111. Electromagnetic Theory I

Review of vector calculus. Dirac delta function. Electrostatic fields. Work and energy. Laplace's and Poisson's equations. Separation of variables. Fourier's trick. Legendre equation. Multipole expansion. Computational

problems. *Prerequisites: PHYS 33 and MATH 22 or AMTH 106. Co-requisite: PHYS 103.* (5 units)

112. Electromagnetic Theory II

Magnetostatics. Induced electromotive forces. Maxwell's equations. Energy and momentum in electrodynamics. Electromagnetic stress tensor. Electromagnetic waves. Potential formulation. Computational problems. Dipole radiation. *Prerequisite: PHYS 111.* (5 units)

113. Advanced Electromagnetism and Optics

Advanced topics in electromagnetic theory, classical optics, photonics, and introductory quantum optics. *Prerequisites: PHYS 112 and PHYS 122.* (5 units)

116. Physics of Solids

Crystal structure. Phonons. Free electron theory of metals. Band theory of solids. Semiconductors. Electrical and thermal transport properties of materials. Magnetism. Superconductivity. Topics from current research literature. Physics 116 is taught as a capstone course. *Prerequisites: PHYS 120, PHYS 121, and senior standing.* (5 units)

120. Thermal Physics

Laws of thermodynamics with applications to ideal and non-ideal systems. Elementary kinetic theory of gases. Entropy. Classical and quantum statistical mechanics. Selected topics from magnetism and low-temperature physics. *Prerequisites: PHYS 34 and PHYS 103. Recommended: PHYS 121.* (5 units)

121. Quantum Mechanics I

The Schrödinger equation. The wave-function and its interpretation. Hilbert space, observables, operators and Dirac notation. Square potentials. Harmonic oscillator. The Hydrogen atom. Angular momentum and spin. *Prerequisites: PHYS 34 and PHYS 104.* (5 units)

122. Quantum Mechanics II

Selected topics in quantum mechanics such as identical particles, time-independent perturbation theory, variational principles, WKB approximation, time-dependent perturbation theory, scattering theory, and quantum information and computation. Physics 122 is taught as a capstone course. *Prerequisite: PHYS 121.* (5 units)

141. Modern Topics in Physics

A selection of current topics in physics research. (5 units)

151. Advanced Laboratory

Laboratory-based experiments in the areas of atomic, nuclear, and quantum physics. Emphasis on in-depth understanding of underlying physics, laboratory techniques, data analysis, and dissemination of results. Design and implementation of independent table-top project. Introduction to LabVIEW™. Written and oral presentations. *Prerequisite: Senior standing.* (6 units)

190. Senior Seminar

Advanced topics in selected areas of physics. Enrollment by permission of instructor. (2 units)

198. Undergraduate Physics Research

Departmental work under close professorial direction on research in progress. *Permission of the professor directing the research must be secured before registering for this course. Restricted to physics majors, engineering physics majors, and honors students with a 3.0 or higher grade point average.* (1–5 units)

199. Directed Reading in Physics

Detailed investigation of some area or topic in physics not covered in the regular courses; supervised by a faculty member. *Permission of the professor directing the study must be secured before registering for this course. Restricted to students with a 3.0 or higher grade point average.* (1–5 units)

DEPARTMENT OF POLITICAL SCIENCE

Professors: Jane L. Curry, Janet A. Flammang *(Department Chair),* Dennis R. Gordon, Eric O. Hanson *(Patrick A. Donohoe, S.J., Professor),* Timothy J. Lukes, William J. Stover
Associate Professors: Elsa Y. Chen, Gregory P. Corning, James S. Lai, Peter I. Minowitz, Terri L. Peretti
Assistant Professor: James B. Cottrill
Acting Assistant Professors: Naomi Levy, Farid Senzai

The Department of Political Science offers a degree program leading to the Bachelor of Science in Political Science. The department introduces students to the analysis of political behavior, values, institutions, and governments. It also offers preparation for various graduate and professional studies and for careers in public service.

The department makes available opportunities to participate in a variety of programs that combine practical field experience and academic credit. It assists students in arranging academic credit for internships in local politics. Students may work for government agencies, legislative or judicial bodies, political parties, or politically related groups. The department regularly offers courses that combine local internships with classroom work. On the national level, Santa Clara is a member school of American University's Washington, D.C., program, in which students receive credit for internships and intensive seminars at the nation's capital. On the international level, the department encourages student participation in the numerous University-operated and -approved study abroad programs, especially those with internships. The political science honors program enhances the regular major by providing a more specialized course of study to prepare highly qualified students for graduate study. All majors who are not seniors and who have completed at least two of the lower-division sequence of courses (1, 2, 25, 30) with a grade point average of 3.0 or better are eligible to apply. A maximum of 15 students from each class are admitted. Admission is determined on the basis of coursework, recommendations, and a personal interview with the faculty director. Honors students are expected to participate in various department-sponsored events, and a representative from the program has full voting status in the deliberations of the department faculty. Participants in the program must complete a senior thesis, fulfill one of three supplemental curriculum requirements (a minor or a second major, Economics 1 and 2, language 21 and 22), and take a highly active role in department affairs.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in political science must complete the following departmental requirements:

- Two Core Curriculum mathematics requirements from MATH 6 and 7, MATH 6 and 8, MATH 6 and 11, MATH 8 and 11, MATH 11 and 12, or MATH 30 and 31
- POLI 1, 2, 25, 30
- Seven upper-division courses in political science, including one lecture course from each of five areas: United States politics, comparative politics, international relations, political philosophy, and applied quantitative methods; a sixth upper-division course from any of these sub-fields; and a seventh upper-division course consisting of a political science seminar taken during the senior year

Political science majors may select a pre-law or public sector emphasis, which will be noted on the student's transcript. Recommended courses for completing the two emphasis options are available from the department office.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in political science:

- Any three lower-division political science courses
- Three approved upper-division courses
- One additional approved upper-or lower-division course

Emphasis in Public Sector Studies

The public sector emphasis is a specialized area of concentration within the political science major allowing students to focus their coursework toward public sector studies. The emphasis is designed to provide a closer look at the creation, implementation, and analysis of public policies, and the operation of governments and public organizations. The public sector emphasis will provide an excellent foundation for those who would like to pursue careers or graduate studies in public policy, public administration, public affairs, urban planning, and law.

This emphasis is open to all political science majors and will be reflected on the student's transcript upon completion. Requirements for the public sector emphasis include a variety of courses both inside and outside of the political science department. For the most up-to-date information about the public sector emphasis, please visit: http://www.scu.edu/cas/polisci/publicsector.cfm.

- ECON 1
- ECON 2
- Upper-division United States Politics: POLI 167 with grade of C or better
- Upper-division POLI Elective-Internship: POLI 198A, 198B, 198 or equivalent, including Washington Semester Program Internships
- Upper-division POLI course for Public Sector: POLI 152, 153, 154, 160, 161, 162, 163, 164*, 165, 166, 168, 181*
- Two additional lower-division courses chosen from the following list:

  POLI 45, ACTG 11, 12, 20, BUSN 71, CENG 5, COMM 2, 20, ECON 3, ENVS 10,11,12, 20, MGMT 6, PHIL 8, 9, 10, SOCI 33, 65, RSOC 49 or others as approved
- Two additional upper-division courses (outside of the political science department) from the following list:

  ANTH 151, BIO 171, COMM 120A, 124B, 162A, ECON 111, 113, 114, 115, 120, 126, 127, 129, 136, 137, 150, 155, 156, 160, 173, 181, 182, 185, 190, EDUC 106, ENGL 185, ENVS 120, 122, 147, 162, HIST 176, MGMT 169, 171, PHIL 109, 111, 113, PSYC 134, SOCI 132, 137, 138, 140, 159, 160, 161, 165, 170, 172, 176 or selected courses from Washington Semester or others as approved by the program director.

*POLI 164 and 181 count as half a course; both must be taken to total one course

Emphasis in Pre-Law

Political science is one of the most common majors for pre-law students. After all, political science is the closest of all majors to the institutions and values with which law deals. The primary study of law is the state, and so too for political science. Additionally, the demands of political science courses (reading of complex texts, independent research, frequent class presentations, and demanding writing assignments) strengthen the analytical and communications skills that the practice of law requires. The pre-law emphasis in the political science department is open to all political science majors and will be reflected on the student's transcript upon completion.

Requirements for the pre-law emphasis include a variety of courses from both inside and outside of the political science department. At most, six courses are required: three within the political science department and three from outside the political science department, although many of these courses fulfill other Core and political science major requirements. For the most up-to-date information about the pre-law emphasis and specific courses, please visit: http://www.scu.edu/cas/polisci/prelaw.cfm.

LOWER-DIVISION COURSES

1. Introduction to U.S. Politics

Critical analysis of U.S. political values, institutions, and processes. America's political tradition, the Constitution, the presidency, Congress, the bureaucracy, Supreme Court, elections, political parties, interest groups, mass media, political opinion and participation, domestic policies, and foreign policy. (4 units)

2. Introduction to Comparative Politics

Government and politics in several modern states. Emphasis on the development of analytical abilities and critical skills in the evaluation of political culture, processes, and institutions. (4 units)

25. Introduction to International Relations

Conceptual models used to analyze international relations, contemporary problems of world politics, and the methods states employ to provide peace and security. Some sections include an interactive computer simulation to apply conflict resolution principles. (4 units)

30. Introduction to Political Philosophy

An exploration of some of the principal themes and questions of political philosophy through the writings of authors such as Plato, Machiavelli, Marx, and Mill. Prominent themes include theory and practice, individual liberty, morality and politics, freedom, obligation, and justice. (4 units)

45. Criminal Justice System

Basic understanding of the U.S. criminal justice system: police, courts, probation, imprisonment, parole, relations with other governmental agencies. Goals, successes, and failures of the system, and possible remedies. (4 units)

50. World Geography

Provides an understanding of world geography through an appreciation of contemporary global problems. Problems include the environmental crisis, international relations, demographic trends, and economic development. Special emphasis on world hunger and the roots of Third World poverty. (4 units)

Note: Upper-division courses in each area below have required prerequisites as noted in each section. In special cases, the instructor of a particular course may make an exception to the requirements.

UPPER-DIVISION COURSES: POLITICAL PHILOSOPHY

Note: POLI 30 is a required prerequisite for upper-division political philosophy courses.

100. Special Topics in Political Philosophy

Selected topics in political philosophy. (5 units)

107. American Political Thought

Selected topics and themes in the history of American political thought. (5 units)

111. History of Political Philosophy I: Greek and Christian

Development of Western political thought from its Greek origins in the work of Plato and Aristotle through the work of Aquinas. (5 units)

112. History of Political Philosophy II: Liberalism and Its Roots

Western political thought from Machiavelli through the origins of liberalism in the writings of Hobbes, Locke, and Rousseau. (5 units)

113. History of Political Philosophy III: Post-Liberal Theories

Writers and themes in 19th- and 20th-century political thought including Marx, Nietzsche, Freud, and Lenin. (5 units)

UPPER-DIVISION COURSES: INTERNATIONAL RELATIONS

Note: POLI 25 is a required prerequisite for upper-division international relations courses.

118. The Cold War

Case study of the critical conflict of the 20th century, to understand the interaction of foreign and domestic politics, the development of current international politics, and the ways in which political ideology and conflict influence people and nations. (5 units)

119. The European Union

Evolution of European political, social, and economic integration in the post-war period. Emphasis on the institutions and politics of the European Union since the Maastrict treaty, and current issues of European integration, such as the addition of new members, monetary union, and internal democratization. (5 units)

120. Mass Media, Information Technology, and International Politics

Use of computer-based simulations and multimedia sources to understand international negotiation and foreign policy decision making. (5 units)

121. International Political Economy

An introduction to the politics and institutions of the world economy. Topics include: competing theories of IPE; regionalism and globalization; the international trading and financial systems; multinational corporations; development and debt. (5 units)

122. East Asian International Relations

An overview of the political, economic and security dimensions of international relations in Northeast Asia with a focus on the foreign policies of China, Japan, and the United States. *Prerequisite: POLI 2 or 25.* (5 units)

124. Law, Security, and Force

An examination of traditional international legal principles involving the use of force in self-defense with case studies to understand how the justification of armed conflict is changing. Discussion of the international community's adjustment to the evolving nature of sovereignty, increasing globalization, and national defense. (5 units)

125. International Law

Sources, nature, and function of international law in world politics. Special attention to the subjects of international law, international transactions, and the rules of war. Viewpoints presented from Western and non-Western perspectives. (5 units)

126. International Organization

International organization in world affairs. Political, economic, and social role of the United Nations, regional organizations, specialized agencies, and nonstate transnational actors. (5 units)

127. Special Topics in International Relations

Selected topics in international relations. (5 units)

128. U.S. Foreign Policy

Aims, formulation, and implementation of U.S. foreign policy since World War II, focusing on diplomacy, war, security, and trade. (5 units)

UPPER-DIVISION COURSES: COMPARATIVE POLITICS

Note: POLI 2 is a required prerequisite for upper-division comparative politics courses.

131. The Military and Politics

Case study of wars in Vietnam to understand civil-military relations, the causes of military intervention, legitimacy-building efforts, and withdrawal from politics. (5 units)

133. Political Parties, Elections and Policy

An examination of how parties and elections mobilize people, what determines election victories, and how parties and elections affect state and national government policies. A focus on American politics in contrast to the processes in democracies in Western and Eastern Europe. Students will be engaged in an on-campus simulation of an election. (5 units)

134. Race and Ethnicity in the Politics of Developed States

An examination of the role of and attempts to deal with racial/ethnic identity and conflict in the politics of the United States, South Africa, the former Soviet Union, Yugoslavia, and Western Europe. (5 units)

136. Politics in Central America and the Caribbean

Political cultures, processes, and institutions of selected Central American and Caribbean states. Governmental organization, dependency, development, and political violence. (5 units)

136A. The Political Structures and Processes in El Salvador and Central America

Examines the governmental institutions and political processes in Central America. Topics include forms of government, the role of political parties, electoral systems, and local government. Offered through the Casa de la Solidaridad in El Salvador. Taught in Spanish. (5 units)

137. Politics in Latin America

An overview of politics in selected Latin American countries. Case studies will focus on historical legacy, citizen participation, political party systems, democratic governance, and economic development. (5 units)

138. Politics in Mexico and Brazil

A comparison of politics in these two countries will provide the context to examine the impact of authoritarian legacies, the institutionalization of democratic processes, the role of civil society, and the process of state reform. (5 units)

139. Religion and Politics in the Developing World

A comparison of the relationships between religion and politics in Asia, Latin America, and the Middle East. Emphasis on the current political influence of traditional organization and belief. (5 units)

140. Politics in Less-Developed Countries

Multidisciplinary study of the problems and politics of political development in Latin America, Africa, and/or Asia. Case studies of communist and capitalist approaches to political development. Impact of international politics on internal development. (5 units)

142. Politics in the Middle East

Designed to give students an understanding of the complexities of Middle East politics, the importance of the region to the world, and the role history and religion have played in the political and social development of the various countries in the region. (5 units)

143. Democracy and Democracy Building

Designed to give students an understanding of theories of democracy and how democracies are built out of military defeat (Germany and Iraq) and internal change either by leaders relinquishing power or popular uprising. Course includes reports of participants about decision making in democratizing processes. (5 units)

144. European Politics

An examination of European politics in the post-war era through political parties and institutions. Evaluation of current challenges facing European governments such as immigration, changing welfare states, regional diversity and an expanding EU using national comparisons. (5 units)

145. Politics of Former Communist States

An examination of transitions of the diverse states of the former Soviet Union and East Europe, with a focus on differences in transitions, progress toward democracy, and the impact on people's attitudes and lives. Students will work with their peers from these countries. (5 units)

146. Politics of African Development

Examines why Africa is the poorest region of the world, focusing on legacies of colonialism, failed political systems, poor economic choices, and external interventions. Discussion of how some states have collapsed into warlordism, civil war, and genocide and how others are creating democratic movements to reverse a history of economic decline. (5 units)

147. Politics in Japan

An overview of politics and political economy in modern Japan. Emphasis on the role of history and culture in shaping the post-war party system and bureaucratic power; one-party dominance and corruption under the 1955 System; the progress of political reform since 1993; and the rise and fall of the Japanese economic miracle. (5 units)

148. Politics in China

Origins of revolution in modern China, the politics of social and economic modernization in China since 1949, the problems of bureaucratization, political participation, and the succession to Deng Xiaoping. (5 units)

149. Special Topics in Comparative Politics

Selected topics in comparative politics. (5 units)

UPPER-DIVISION COURSES: UNITED STATES POLITICS

Note: POLI 1 is a required prerequisite for upper-division U.S. politics courses.

150. The Presidency

Analysis of the presidency as it has evolved throughout U.S. history. Comparison of presidential powers with those of Congress, the courts, the bureaucracy, the press, political parties, and the public. (5 units)

151. The Congress

History, structure, and policies of Congress. Congressional elections and theories of representation, the committee system and congressional norms, lobbying, congressional ethics and reforms, and the power of Congress relative to the president and the bureaucracy. (5 units)

152. Political Participation

An examination of who participates in U.S. politics and the various forms of political participation. Elections, political parties, interest groups, community organizing, and political protest. (5 units)

153. Minority Politics in the United States

Survey course with a focus on the historical and contemporary struggles of minority groups in the United States. The minority groups analyzed comparatively within a political and institutional context are African Americans, Latinos, Asian Americans, Native Americans, minority women, gays, and the physically disabled. Various issues include theories of race, ethnicity, gender, and class to understand how these variables serve as a basis for identification and political mobilization in American politics. (5 units)

154. Women and Politics

A consideration of the various ways women have changed "politics as usual." Examination of the status of women today, varieties of feminist thought, women as voters and as an interest group, women in public office, and public policy issues. (5 units)

156. Politics and Mass Media

An examination of the politics of the mass media, interactions between politicians and the media, the effects of mass media on political life and public opinion, concerns of racial and ethnic minorities, and the ethics of media work. (5 units)

160. The Constitution and Equality

Constitutional law doctrines and decisions regarding the 14th Amendment's guarantee of equal protection. Topics include race discrimination (particularly school desegregation and affirmative action), sex discrimination, discrimination against the poor, and discrimination based on sexual orientation. (5 units)

161. Law and Politics in the United States

Examination of the U.S. legal system. Topics include legal culture, the adversary system and its alternatives, system participants (litigants, lawyers, and judges), judicial selection, and legal versus political influences on judicial decision making. Special attention to the question of the capacity of courts to serve as agents of social change. (5 units)

162. Urban Politics

Examination of political processes in the U.S. city. Special attention to the structures and institutions of urban political power and the changing forms of political action. Discussion of the historical development of urban social life, political cultures, racial/ethnic and class communities, political economy, and urban planning. (5 units)

163. State and Local Politics

A consideration of the politics and processes of state and local governments, with particular attention given to California state, county, and municipal politics. Topics include federalism, executives, legislatures, courts, interest groups, parties, elections,

financing, and issues such as education, welfare, criminal justice, transportation, housing, and urban growth. (5 units)

165. Public Administration

Administration of public policies in terms of broad questions of democratic theory. Organizational theory, public employees, budget making, policy evaluation, and public finance. (5 units)

166. California Politics

An examination of the structures and processes of California politics: the state's constitution, legislature, governor, courts and executive agencies. Special attention to democratic dilemmas of citizen participation (elections, ballot initiatives), legislative gridlock (redistricting, budget), and crucial policies (education, health and welfare, immigration, criminal justice, energy and environment). (5 units)

167. Making Public Policy

An examination of the nature of U.S. public policy and policy analysis through the use of texts and case studies. Stages of policy development (how an idea becomes a policy, agenda-setting, implementation, analysis, and evaluation). Ethical issues in public policy. (5 units)

168. Special Topics in Public Policy

Substantive in-depth study of selected issues in U. S. public policy, such as health care, criminal justice, housing, and homelessness. Emphasis on the intersection of policy areas. Arrupe placement required. (5 units)

169. Special Topics in U.S. Politics

Selected topics in U.S. politics. (5 units)

UPPER-DIVISION COURSES: APPLIED QUANTITATIVE METHODS

Note: POLI 1, 2, and 25 are required prerequisites for upper-division applied quantitative methods courses.

170. Research Methods in Political Science

An introduction to statistical techniques that are especially relevant to data from the social sciences. Attention is also given to the epistemological issues relevant to employing scientific methodology in the social sciences. (5 units)

UPPER-DIVISION COURSES: SENIOR COURSEWORK

Note: For senior coursework, at least one upper-division lecture course from the corresponding area is required.

180. Honors Research Projects

Independent research and writing on a selected topic or problem. Limited to members of the Political Science Honors Program. (5 units)

190. Seminar in Research Methods

Plan and conduct political science research on selected topics, such as political communication and socialization. (5 units)

192. Seminar in Comparative Politics

Selected topics in comparative politics in various states and regions. (5 units)

193. Seminar in Political Philosophy

Selected topics in political philosophy. (5 units)

194. Seminar in Political Philosophy

An examination of Frank Herbert's *Dune* series and other science fiction classics, focusing on politics, war, religion, jihad, multiculturalism, and ecology. (5 units)

195. Seminar in U.S. Politics

Selected topics in U.S. politics. (5 units)

196. Seminar in International Relations

Selected aspects of international political behavior. (5 units)

LOWER-DIVISION COURSES: PUBLIC SECTOR STUDIES

45. Criminal Justice System

Basic understanding of the U.S. criminal justice system: police, courts, probation, imprisonment, parole, relations with other governmental agencies. Goals, successes, and failures of the system, and possible remedies. (5 units)

UPPER-DIVISION COURSES: PUBLIC SECTOR STUDIES

164. Studies in Public Policy

Selected topics and problems in public policy viewed from a "political insider's" perspective. Taught by a political practitioner. (2 units)

165. Public Administration

Administration of public policies in terms of broad questions of democratic theory. Organizational theory, public employees, budget making, policy evaluation, and public finance. (5 units)

167. Making Public Policy

An examination of the nature of U.S. public policy and policy analysis through the use of texts and case studies. Stages of policy development (how an idea becomes a policy, agenda-setting, implementation, analysis, and evaluation). Ethical issues in public policy. (5 units)

168. Special Topics in Public Policy

Substantive in-depth study of selected issues in U. S. public policy, such as health care, criminal justice, housing, and homelessness. Emphasis on the intersection of policy areas. Arrupe placement required. (5 units)

181. Silicon Valley Politics

Focus is on the politics of the Silicon Valley region within the context of California state politics. The major case studies address the challenges facing local governments, particularly in the areas of housing, environment, technology, and transportation policies. (2 units)

198. Public Service Internships

Directed internship in government agencies, legislative bodies, political parties, or interest groups, public or government affairs departments of corporations, or nonprofit organizations. *Open to qualified juniors or seniors with permission of the instructor.* (variable units)

198A. Public Sector Study and Internship

Directed internship in local government agencies, legislative bodies, political parties, interest groups, public or government affairs departments of corporations, or nonprofit organizations, integrated with classroom analyses of professions in public sector, frequent guest speakers, and research project. *Open to qualified juniors and seniors.* (variable units)

198B. Public Sector Study and Internship

Directed internship in local government agencies, legislative bodies, political parties, interest groups, public or government affairs departments of corporations, or nonprofit organizations, integrated with classroom analyses of professions in public sector, frequent guest speakers, and research project. *Open to qualified juniors and seniors.* (variable units)

UPPER-DIVISION COURSES: SPECIAL COURSES

199. Directed Reading

Independent study. Intensive work in areas not fully covered in upper-division courses. *Written outline of the proposed course, with required form and all necessary signatures, must be submitted at least one week prior to registration.* (1–5 units)

DEPARTMENT OF PSYCHOLOGY

Professors Emeriti: Roland C. Lowe, Marvin L. Schroth, William W. Yabroff
Professors: Jerry M. Burger, Lucia Albino Gilbert, Robert Numan, Thomas G. Plante, Timothy C. Urdan *(Department Chair),* Eleanor W. Willemsen
Associate Professors: Matthew C. Bell, Tracey L. Kahan, Gerdenio M. Manuel, S.J., Patricia M. Simone, Kieran T. Sullivan
Assistant Professors: Katerina Bezrukova, Amara T. Brook, Brett Johnson Solomon

The Department of Psychology offers a degree program leading to the Bachelor of Science in Psychology. Psychology is the study of behavior, emotion, and thought using techniques modeled on the scientific method. At the undergraduate level, the study of psychology is part of a liberal education. A major in psychology lays the groundwork for various advanced studies, including the pursuit of graduate degrees needed for the professional practice of psychology.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in psychology must complete the following departmental requirements:

- PSYC 1, 2, 40, 43
- MATH 6 and 7 or MATH 11 and 12
- One course from PSYC 165, 166, 167
- One course from PSYC 172, 185, 196
- One course from PSYC 115, 117, 157
- One course from PSYC 150, 160
- One course from PSYC 120, 130, 131
- One course from PSYC 118, 144, 168, 170, 178, 195
- Two additional approved upper-division psychology courses

Emphasis in Psychobiology

In addition to the Bachelor of Science and departmental requirements, students who wish to study neuroscience may elect the psychobiology concentration, which requires completing the following courses in addition to requirements for the major:

- MATH 11, 12
- CHEM 11, 12, 13, 31, 32
- BIOL 21, 22, 23, 24, 25

Emphasis in Gerontology

In addition to the Bachelor of Science and departmental requirements, students who wish to study the process of aging should inquire about the gerontology certificate program.

LOWER-DIVISION COURSES

1. General Psychology I

The scientific study of behavior. Topics include the physiological basis of behavior, sensation and perception, conditioning and learning, memory, motivation, and emotion. Other topics may include language, problem solving, sleep and dreaming, and consciousness. (4 units)

2. General Psychology II

The scientific study of behavior. Topics include human development, personality, abnormal psychology, clinical intervention, and social psychology. Other topics may include psychological assessment, cross-cultural psychology, and psychological adjustment. (4 units)

1H. Honors Colloquium

Restricted to students in the University Honors Program. The honors version of PSYC 1. (4 units)

2H. Honors Colloquium

Restricted to students in the University Honors Program. The honors version of PSYC 2. (4 units)

40. Statistical Data Analysis

An introduction to statistical methods used in psychological research. *Prerequisites: Declared psychology major and MATH 6 or 11.* (4 units)

43. Research Methods in Psychology

Investigation of methods of psychological research and issues involved in the collection of data. Exercises require designing research projects, collecting data, and writing professional reports. *Prerequisites: PSYC 1 or 2 and 40.* (4 units)

50. Ways of Knowing

Personal experience, the scientific method, journalistic techniques, anthropological observation methods, intuition, and faith (religious, paranormal) are just a few of the ways of knowing that people use. This course explores each of these ways of knowing with the goal of answering the following questions: What are the strengths of each way of knowing? What are the limitations? Which method of inquiry is best for answering different types of questions? (4 units)

65. Foundations of Behavioral Neuroscience

A basic introduction to brain structure and function. The course has standard lecture hours, but integrates hands-on laboratory experiential exercises during the class sessions. (4 units)

UPPER-DIVISION COURSES

Note: Prerequisites for all upper-division courses, in addition to those listed for specific courses, are 1, 2, 40, and 43, or permission of instructor. Nonmajors are encouraged to seek permission of instructor.

102. Writing in Psychology

Development of writing, reading, critical thinking, and literature search skills within traditional formats for communicating scholarship in psychology. Covers the use of APA style for experimental reports and literature reviews. In addition to developing communication skills, assignments emphasize how to interpret experimental findings and evaluate support for hypotheses. Other assignments will require students to synthesize findings from several published studies and draw conclusions about a body of research. *Prerequisites: ENGL 1 and ENGL 2, PSYC 1, 2, 40, and 43.* (5 units)

105. Statistics and Experimental Design II

Advanced topics in theory and methods of statistical analysis and experimental design. Complex analysis of variance and multiple correlation and regression are typically covered. *Prerequisite: By permission of the instructor only.* (5 units)

110. Advanced Topics in Research Methods

Students will learn the major research designs used in psychology and how to understand statistical results that come out of those designs. These include experimental designs, multiple linear and nonlinear regression, nonparametric analyses, multi-variate ANOVA used with experimental designs, structural equation modeling, and small N designs. Students will learn how to read research reports using these designs, how to understand statistical results obtained from the designs, and how to communicate those results in passages that would belong in an APA-style report. The emphasis is on understanding the designs and results rather than on doing the analyses oneself. *Prerequisites: PSYC 1 or 2 and 43.* (5 units)

111. Advanced Topics in Motivation

Seminar exploring theories and research in motivation and emotion. Students will read, discuss, and critically analyze current empirical research and review articles in these areas. Topics emphasized will include cultural and individual variation in motivation and emotion, development of motivation and emotion, and the social, cognitive, and biological bases of motivation and emotion. Meets the Psychology Capstone requirement. *Prerequisites: Senior standing, PSYC 112, and all lower-division psychology requirements.* (5 units)

112. Motivation and Emotion

Scientific study of the various motivational emotional processes of people and higher animals. Biological drives, psychological survival needs, altered states of consciousness, social motives, and theories of emotion. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

113. Advanced Topics in Health Psychology

Seminar examines contemporary topics in health psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. Meets the Psychology Capstone requirement. *Prerequisites: Senior standing, PSYC 117, and all lower-division psychology requirements.* (5 units)

114. Ethics in Psychology

The role of ethical behavior and decision making in the field of psychology and related behavioral, medical, and social sciences. Topics include approaches to moral issues and related to competence; integrity; professional, scientific, and social responsibility;

respect for others' rights and dignity; and concern for others' welfare. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

115. Abnormal Psychology

The study of psychology and human behavior in understanding the etiology, nature, development, and treatment of mental disorders. Topics include models of abnormal behavior, research, diagnosis, assessment, and treatment of emotional and behavioral disorders, such as affective disorders, personality disorders, sexual disorders, substance abuse disorders, and childhood disorders. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

116. Psychosomatic Medicine

Psychosomatic medicine involves the role of psychological functioning and human behavior in the development and maintenance of illnesses and medical problems. Topics include the history and perspectives of psychosomatic medicine, as well as a wide variety of psychosomatic disorders, such as eating, panic, irritable bowel, ulcer, conversion, trichotillomania, somatoform, Munchausen's syndrome, and others. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

117. Health Psychology

Health psychology involves the discipline and principles of psychology and human behavior in understanding how the mind and body interact in health and disease. Topics include health promotion and primary prevention of illness, health enhancing and health damaging behaviors, psychosomatic illness, stress and coping, pain management, and a variety of specific behavior-related medical illnesses (e.g., heart disease, eating disorders, cancer, and AIDS). *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

119. Psychology of Death, Dying, and Loss

An introduction to theory, research, and practice on the psychology of death and dying. Students explore the implications of death, dying, and loss in their lives. Topics include death in today's health care system, the psychology of grieving and coping with loss, life-threatening illness, caregiving, as well as social, cultural, and ethical issues related to death in contemporary society. *Prerequisites: PSYC 1, 2, 40, 43 or permission from instructor.* (5 units)

120. Perception

A theoretical and empirical investigation of human perceptual processes, with an emphasis on visual perception. Topics include psychophysiology of vision; perceiving visual space (shape, contrast, orientation, distance, depth, motion); color perception; perceptual illusions; imagining vs. perceiving; effects of knowledge on perception; perception in "novel" environments. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

130. Psychology of Learning

The scientific investigation of learning and behavior. Both experimental and theoretical developments are considered, as well as the application of the principles of learning. Topics include Pavlovian and operant conditioning, stimulus control, schedules of reinforcement, choice, and punishment. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

131. Cognitive Psychology

A theoretical, empirical, and experiential investigation of human information processing. Topics include the history of the discipline and the following research areas: pattern perception, attention, working memory, long-term memory, memory distortions, imagery, language processes, and problem solving. Emphasizes contemporary theory and research, including recent developments in cognitive neuroscience. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

132. Advanced Topics in Learning

Seminar examines contemporary topics in learning theory and research. Original research, current trends, and special focus on

ongoing research and applied programs will be highlighted. Meets the Psychology Capstone requirement. *Prerequisites: Senior standing, PSYC 130, and all lower-division psychology requirements.* (5 units)

133. Advanced Topics in Cognitive Psychology

Seminar exploring theories and research in cognitive psychology and cognitive neuroscience. Students will read, discuss, and critically analyze contemporary theories and research in these areas. Topics emphasized will include consciousness, attention, memory, metacognition, and the relationship between imagery and perception. Meets the Psychology Capstone requirement. *Prerequisites: Senior standing, PSYC 120 or PSYC 131 or PSYC 166, and all lower-division psychology requirements.* (5 units)

134. Psychology of Education

Also listed as LBST 134. For course description, see LBST 134. (5 units)

135. Psychology of Sleep and Dreaming

A theoretical, empirical, and experiential exploration of sleep, sleep disorders, and dreaming. Considers physiological, cognitive, neurocognitive, and functional approaches. Topics include: psychophysiology of sleep and dreaming; purported functions of sleep and dreaming; personal and public health consequences of sleep disorders, sleep deprivation, and sleep debt; continuity in mental processes across the sleep/wake cycle; memory for dreams; approaches to working with dreams; consciousness and dreaming, including lucid dreaming. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

136. Advanced Topics in Educational Psychology

Seminar exploring theories and research in educational psychology. Students will read, discuss, and critically analyze current empirical research and review articles in educational psychology. Topics emphasized will include motivation, learning, assessment, and individual and cultural differences as they pertain to education. Meets the Psychology Capstone requirement. *Prerequisites: PSYC 134 and all lower-division psychology requirements.* (5 units)

144. Psychological Assessment

Principles and issues related to testing and measurement in psychology. Topics include test construction, reliability, validity, and the professional and ethical use of psychological tests and test scores. Meets the Psychology capstone requirement. *Prerequisites: PSYC 1, 2, 40, and 43. Restricted to senior psychology majors only.* (5 units)

150. Social Psychology

The scientific investigation of how people influence each other. Students will learn social psychological theories about the causes of human behavior, as well as how these theories can be scientifically tested and applied to solve real world problems. Topics include social cognition, the self, attitude change, conformity, compliance, group processes, helping, stereotyping, prejudice, discrimination, intergroup relations, aggression, and attraction. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

151. Advanced Topics in Social Psychology

Seminar examines contemporary topics in social psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. Meets the Psychology capstone requirement. *Prerequisites: Senior standing, PSYC 150, and all lower-division psychology requirements.* (5 units)

153. Psychology of Close Relationships

The scientific investigation of close relationships, drawing from clinical psychology and social psychology. Topics include research methodologies for studying close relationships; theories of attraction, love and

marriage; the developmental process of relationships; and interventions for distressed relationships. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

154. Psychology of Women

An introduction to psychological concepts and theories as they apply to women. Discussion of thinking and behavior as they apply to women. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

155. Psychology and Law

Explores relevance for law of psychological principles and findings, as well as laws pertaining to practice. Topics include eyewitness testimony, legal insanity, jury dynamics, expert testimony, and family law issues. This course is open to nonmajors. (5 units)

156. Psychology of Diversity

The goal of this course is to raise awareness of important differences and provide students with the knowledge needed to be productive in a more diverse workplace. This will be facilitated by discussion of prejudice, stereotypes, and approaches to acculturation and integration in organizations. *Prerequisites: PSYC 1 or 2, PSYC 43, or permission from instructor.* (5 units)

157. Industrial/Organizational Psychology

An introduction to the broad field of Industrial/Organizational (I/O) Psychology, which includes science and practice related to personnel selection and placement, training and development; organizational development; occupational health and safety; work motivation; and other areas concerned with human behavior in organizational contexts. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

158. Conservation Psychology

Many environmental problems (e.g., global warming, pollution, biodiversity loss, and resource depletion), are caused by human behavior, and changing this behavior is necessary in order to solve them. Topics include psychological reasons (emotions, thoughts, values, motivations, social context) why people behave in environmentally sustainable or unsustainable ways, and how psychology can be used to develop policies and other interventions to help promote sustainable behavior. *Also listed as ENVS 158. Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

159. Religion in the Theories of Freud and Jung

Also listed as RSOC 180. For course description see RSOC 180. (5 units)

160. Personality

The study of individual differences and personality processes. Discussion of major theories of personality. Presentation of current research topics in personality and methods for assessing individual differences and other personality constructs. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

161. Advanced Topics in Industrial/Organizational Psychology

Seminar examines contemporary topics in industrial/organizational psychology. Original research, current trends, and special focus on ongoing research and applied programs will be highlighted. Meets the Psychology Capstone requirement. *Prerequisites: Senior standing, PSYC 157, and all lower-division psychology requirements.* (5 units)

162. Cross-Cultural Psychology

Study of psychology from various cultural perspectives with a view to identifying patterns of behavior that are universal and those that are culturally specific. The course looks at the extent to which American research findings apply to other societies. Also examines issues that arise in cross-cultural encounters. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

165. Physiological Psychology

Emphasis on the neuroanatomical, neurochemical, and neurophysiological correlates of motivation, emotion, learning, and memory. Neural regulation of sleep and arousal, mechanisms of drug action, and neuropathology are also reviewed. (5 units)

166. Human Neuropsychology

Study of human brain function from an experimental perspective. Addresses questions such as: What are the brain mechanisms that lie at the basis of perception and memory, of speech and thought, of movement and action? What happens to these processes when individual parts of the brain are destroyed by disease? *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

167. Psychopharmacology

Examination of the effects of various drugs, such as nicotine and alcohol, and abnormal neurochemical states, such as schizophrenia and depression, on mental functioning and behavior. Topics include the effects of various drugs on the brain and the biochemical basis of human neurosis and psychosis. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

168. Advanced Topics in Neuroscience

An integration from various subdisciplines in psychology with an emphasis on the brain and behavior. Topics include neural development from fetus to early childhood, neural basis of psychopathologies (e.g., schizophrenia and depression), cognitive functions (memory, attention, and learning), and personality and related disorders. Meets the Psychology Capstone requirement. *Prerequisites: Two upper-division psychology courses and is restricted to senior psychology majors only.* (5 units)

170. History and Systems of Psychology

Origin and development of modern psychological approaches. Psychoanalysis, behaviorism, Gestalt, humanism, and existentialism. Emphasis on conceptual issues. Focuses on selected topics viewed from the multiple conceptual frameworks and sub-disciplinary perspectives that characterize psychology's history. Meets the Psychology Capstone requirement. *Prerequisites: PSYC 1, 2, 40, and 43; and is restricted to senior psychology majors only.* (5 units)

172. Adolescent Development

A focus on development during the second decade of life, from puberty through early adulthood. Topics include physical, intellectual, and social development; identity; sexuality; changing social contexts; and life transitions. *Prerequisite: PSYC 1 or 2.* (5 units)

175. Humanistic Psychology

Historical and conceptual roots of humanism. Implication of the "third force" for therapy, community living, education, and research. Special attention to humanistic psychotherapies and the application of humanistic principles to education. Three hours per week of community volunteer work required. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

178. Advanced Topics in Developmental Psychology

Satisfies the senior capstone requirement for seniors majoring in psychology. The course format is a seminar where prepared daily participation is expected and class leadership will be required once during the quarter. The assigned readings will be taken from developmental theory and peer-reviewed empirical research in developmental psychology. The class will discuss possible applications of theory and findings in the reading to real-world issues involving children and adolescents. Each student will prepare a major paper on a chosen topic that combines the elements of literature review, systematic observation, and research proposal. Meets the Psychology Capstone requirement. *Prerequisites: PSYC 185, at least one other upper-division psychology course, and declaration of a psychology major.* (5 units)

182. Gender and Human Development

Examines how gender identity is developed and how gender influences the development of children, adolescents, and adults. Topics include gender identity, parenting, sexual orientation development, sex roles, and similarities and differences between the genders in treatment, expectations, and opportunities. *Prerequisites: PSYC 1 or 2.* (5 units)

185. Developmental Psychology I

First course in a sequence of courses that explores the development of individuals during the life cycle. Topics for the sequence include: (1) principles and theories of development; (2) perceptual, cognitive, social, and personality development; (3) family, school, and other societal influences on development; and (4) applied issues in child rearing, education, and other socialization practices. Students have an opportunity to clarify their own values about having and raising children and about the responsibilities of society in general to children. *Prerequisite: PSYC 1 or 2.* (5 units)

186. Developmental Psychology II

Building on concepts from PSYC 185, a more in-depth examination of topics in child development. Special emphasis on relation between theory and practice. *Prerequisite: PSYC 185.* (5 units)

188. Adult Development

Young adulthood through middle age. Stages and transitions in adult life, the concept of life crisis, and the interplay of situations and personality. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

189. African American Psychology and Identity Development

This course provides an overview of African American psychology. It does so by examining the multi-dimensional nature of identity development of African Americans and the ways in which racism and class impact identity formation. This course approaches psychological development from an African American perspective and reviews current issues in contemporary African American psychology. The course also examines research methodologies and historical trends that have impacted the way we understand the world in general and African Americans specifically. *Prerequisite: PSYC 1 or 2.* (5 units)

190. Clinical Psychology

The discipline and principles of clinical psychology in understanding the etiology, nature, development, and treatment of behavioral, emotional, and relational problems. Topics include the history of clinical psychology, theoretical models, assessment and intervention approaches, specialization, ethics, and current trends. *Prerequisite: PSYC 115.* (5 units)

195. Research Practicum

Advanced methodological issues taught primarily through direct involvement in an experimental research project. Activities include reviewing the literature, formulating a research question, developing a design and procedure, collecting and analyzing data, and writing a professional research report. Meets the Psychology capstone requirement. *Prerequisites: Two upper-division psychology courses; and is restricted to senior psychology majors only.* (5 units)

196. Psychology of Aging

Development in later life. Topics include: (1) theories of aging and development; (2) cognition, perceptual, and social changes in aging; (3) mental health issues in the elderly; and (4) abnormal aging, such as Alzheimer's disease. *Prerequisites: PSYC 1, 2, 40, and 43.* (5 units)

198. Internship/Practicum

Clinical experience in community agencies. Selected readings. Open to upper-division students with an average GPA of 3.0 or higher who have received permission of a faculty sponsor. (2–5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. To receive course credit, the student must submit a formal written proposal and have it approved by the sponsoring faculty member and the department chair. The proposal must be submitted before the end of the previous quarter and must meet University requirements for independent study credit. (1–5 units)

199C. Directed Reading/ Directed Research

Capstone independent projects undertaken by upper-division students with a faculty sponsor. To receive course credit, the student must submit a formal written proposal and have it approved by the sponsoring faculty member and the department chair. The proposal must be submitted before the end of the previous quarter and must meet University requirements for independent study credit and requirements for a psychology capstone course. (5 units)

DEPARTMENT OF RELIGIOUS STUDIES

Professors Emeriti: Joseph A. Grassi, Anne Marie Mongoven, O.P.
Professors: Michael J. Buckley, S.J. *(Augustine Cardinal Bea, S.J. University Professor),* Denise L. Carmody, Paul G. Crowley, S.J. *(Department Chair and Santa Clara Jesuit Community Professor),* Diane E. Jonte-Pace, Gary A. Macy *(John Nobili, S.J. Professor),* Frederick J. Parrella, John David Pleins
Associate Professors: James B. Bennett, Kristin Heyer, Teresia Hinga, Michael C. McCarthy, S.J., Catherine M. Murphy, David J. Pinault, Ana Maria Pineda, R.S.M., James W. Reites, S.J., Philip Boo Riley, Francis R. Smith, S.J.
Assistant Professors: Michael T. Castori, S.J., David B. Gray, Akiba Lerner
Senior Lecturers: Margaret R. McLean, Salvatore A. Tassone, S.J.

The Department of Religious Studies offers a degree program leading to the Bachelor of Arts in Religious Studies. The department offers courses as part of the University Core Curriculum as well as a minor program for those who wish to concentrate in the study of religion and theology. The aim of the program is to foster an engaged, critical, and integrated understanding of religion in the University's tradition of Jesuit liberal education. Because of the University's commitment to examine diverse religious traditions, the Department of Religious Studies offers a wide breadth of courses. Congruent with the University's commitment to the Catholic faith tradition, the department also offers a variety of courses in Catholic theology.

The department offers courses in three areas: scripture and tradition; theology, ethics, and spirituality; and religions and society. Students can take their Core Curriculum courses in any area they wish, but the three courses must be in proper sequence: introductory (course numbers 1–19); intermediate (course numbers 20–99); and advanced (course numbers 100–199). The advanced course must be taken after completing 88 quarter units. Transfer students entering with 44 or more units are exempt from the three-course sequence, but are required to take two courses at any level.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Arts degree, students majoring in religious studies must complete the following departmental requirements:

- Four lower-division courses, one from each of three areas (scripture and tradition; theology, ethics, and spirituality; and religion and society) and an additional course from any area
- Eight approved upper-division courses after reaching junior status, including four designated religious studies seminars, with one in each of the three areas and an additional one in any area
- Senior portfolio: a critical compendium of the seminar papers submitted to the faculty for evaluation

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in religious studies:

- One introductory-level religious studies course (1–19)
- Two intermediate-level courses (20–99)
- Four approved advanced-level courses (100–199), one of which must be a religious studies seminar. Of the seven courses, at least one must be in each of the following areas: scripture and tradition; theology, ethics, and spirituality; and religion and society.

LOWER-DIVISION COURSES: SCRIPTURE AND TRADITION (SCTR)

11. Origins of Western Religion

An introduction to the study of religion through an inquiry into the origins of Western religion. Surveys the principal issues raised during the foundational periods of the Jewish and Christian religions and considers the continued debates sparked by these traditions. (4 units)

19. Religions of the Book

Examines the history and religious traditions of the Hebrew Bible, giving attention to geography, politics, and belief systems of Judaism, Christianity, and Islam, and their development in history. Focuses on developing appropriate tools for the study of religions. (4 units)

22. The Synoptic Gospels

A survey of the Gospels of Mark, Matthew, and Luke in light of the findings of modern scholarship. Special attention given to the relationships among the Gospels, the particular situations of the churches in which they were written, and the special intentions and considerations of the authors. (4 units)

23. Christ in the Four Gospels

Deals with the historical ministry of Jesus, his resurrection, and how his disciples and the church of the New Testament period interpreted Jesus' teaching and developed their beliefs about Christ. Concentrates on the Gospel portrayal of Jesus Christ. (4 units)

24. Christian Origins: Luke/Acts

The story of Jesus is told in four different Gospels by the four evangelists. Yet only Luke added a second volume about the first generation of Christians, called the Acts of the Apostles. This intermediate-level course investigates the historical origins of Christianity, especially as recorded in Luke's two-volume contribution to the New Testament. (4 units)

26. Gender in Early Christianity

The history of early Christianity is often portrayed as a history of, by, and about men, despite clear indications that women played a prominent role in the early church. Introduces the construction of gender in antiquity, Jewish and Greco-Roman laws and customs, the biblical canon and other Christian texts. Contemporary feminist perspectives will inform the discussion. (4 units)

27. Historical Jesus

A study of the sources, problems, and methods in the various "quests" for Jesus of Nazareth. Each phase of the quest in the 19th and 20th centuries, from Reimarus to the Jesus Seminar. Students will assess historical-critical criteria and apply these criteria to the sources in a term paper in order to construct their own versions of a "life" of Jesus. (4 units)

30. New Testament

Explores the historical and religious background of the New Testament period and concentrates on the origin and purpose of the New Testament writings and the overall meaning of the individual books. (4 units)

33. Narratives of Christian Scripture

Exploration of the stories that emerged with the Jesus event, their historicity, and their role in forming the early Christian communities. No previous knowledge of Christianity is needed. (4 units)

35. Science vs. the Bible: The Genesis Debates

Exploration of the continuing debate over the biblical stories of creation and the flood in relation to the sciences of human evolution, geology, and mythology. One focus is on historical developments in America and England in the 17th-19th centuries. The role of fundamentalist Christianity in the public school system today. (4 units)

41. Biblical Hebrew I

Introduction to the vocabulary and grammatical forms of Biblical Hebrew. (4 units)

42. Biblical Hebrew II

Completion of the grammatical forms of Biblical Hebrew. (4 units)

43. Biblical Hebrew III

Introduction to the readings of various genres of Biblical Hebrew literature and ancient Hebrew inscriptions. (4 units)

48. Jesus the Jew

In the New Testament, Jesus of Nazareth is called "rabbi"; he argues in Pharisaic terms with Jewish Pharisees; quotes the Jewish Bible repeatedly; is recognized by some as a Jewish messiah; and is eventually executed as a Judean rebel. Explores the Jewishness of the earliest Jesus movement and its traditions, and considers how a small, first-century Jewish sect ultimately becomes a world power largely ignorant of—and often hostile—to Jews and Judaism. (4 units)

UPPER-DIVISION COURSES: SCRIPTURE AND TRADITION (SCTR)

100. Biblical Poetry and Ancient Myth

Comparative study of the poetry and myths of ancient Israel and the ancient world. Focuses on the Psalms, the Song of Songs, and the Book of Job. Examines a number of Mesopotamian, Canaanite, and Egyptian myths. Discusses the methodological problem of mythic interpretation. (5 units)

101. The Bible in Conflict

Explores current debates and conflicts over the Bible, including the religion and science dialogue, gender questions, liberation politics, and archaeological conflicts with biblical history. (5 units)

106. Person of Christ in the New Testament

Deals with Jesus' understanding of himself and his mission as well as the New Testament interpretation given to them. Different Christologies of the New Testament studied in order to show the unity and diversity in their interpretation of Christ. (5 units)

108. The Impact of the Dead Sea Scrolls

The Dead Sea Scrolls, over 800 manuscripts (250 B.C.E. to 68 C.E.) were discovered in 1947-1956, one of the greatest manuscript finds of the 20th century. This course begins by exploring the manuscripts and archeological evidence of Qumran, then the impact of the scrolls on understanding Judaisms and Christianities, both ancient and modern. (5 units)

110. Gods, Heroes, and Monsters: Myth and Bible

Explores the debates about the meaning of myth in relation to the Bible and other ancient texts, with special attention to diverging theories of myth, role of the male hero, violence, feminist interpretations, problem of suffering, the relation of religion and science, etc. (5 units)

119. Law in Judaism, Christianity, and Islam

Examines how experiences and concepts of God within the monotheistic traditions have determined norms of human conduct. Considers the place of "the Written and Oral Torah" in Judaism, the diversity of Christian interpretations and formulations of "the Law" from the time of the New Testament to the present, and the centrality of Sharia, "the Path," in Islam. How law functions both in constructing the identity of a religious community and in shaping that community's encounter with larger society is explored. (5 units)

125. Quran Interpretation

Course comprises a close reading of Islamic scripture and various forms of scriptural exegesis. Also the historical context surrounding Qur'anic revelations, diverse forms of Qur'anic interpretation in premodern and contemporary eras, including issues relating to traditionalism and modernity, women, human rights, and mystical experience. No previous coursework in Islam is required. (5 units)

126. Sufi Mysticism

Examination of the mystical tradition in Islam. Includes the discussion of personal piety, as well as institutional manifestations of mysticism, such as the tariqas or Sufi orders. Attention given to mystical dimensions of the Qur'an, as well as the dialectic between Sufi masters and legal authorities. (5 units)

128. Human Suffering

Explores issues of human suffering, justice, and belief in light of the biblical book of Job. Best for students interested in the creative arts, fiction writing, or community service. (5 units)

132. Apocalypse Now

Exploration of characteristic themes in apocalyptic literature, theories about the social origins of the apocalyptic movements of ancient Judaism and Christianity, and motifs and themes in the popular media. (5 units)

134. Living the Exodus

Explores the ongoing religious, social and political significance of the Exodus, as well as the potential and risks that a shared tradition holds for interfaith relations. (5 units)

141. Advanced Hebrew I

Advanced grammar review and reading of select biblical narratives and poetic texts. (5 units)

142. Advanced Hebrew II

Extended reading of biblical Hebrew narratives and poetic texts. (5 units)

143. Advanced Hebrew III

Continuation of extended reading of biblical Hebrew narratives and poetic texts. (5 units)

144. Aramaic Grammar

Introduction to Aramaic grammar. Reading of biblical Aramaic texts and selections from the Targums. (5 units)

158. Postcolonial Perspectives on the New Testament

Introduces students to postcolonial critical theory and uses it to explore the political contexts of New Testament texts, raising new questions about the ethical implications of how we read these texts today. (5 units)

165. Gender and Sex in Biblical Interpretations

Opens the Bible to critical readings from feminist and queer theory. It examines the original contexts of contested passages (creation, the destruction of Sodom, the role of women in early Christianity) as well as subsequent interpretation, and exposes the insights and ethical challenges that gender studies pose to these classic texts. (5 units)

198. Practicum

(1–5 units)

199. Directed Readings and Research

For religious studies majors only. (1–5 units)

LOWER-DIVISION COURSES: THEOLOGY, ETHICS, AND SPIRITUALITY (TESP)

4. The Christian Tradition

A theological examination of the Christian tradition covering such topics as religious experience and the meaning of God; Jesus in the Gospels; the development and history of the Christian churches; the relevance of Christianity in the 21st century global world. (4 units)

25. Christian Conversion: Changing Self

A creative exploration of the psychic dimensions of change in the individual and how these relate to methods in theology and catechesis. (4 units)

31. The Christ: Mystery and Meaning

An historical and theological examination of Jesus of Nazareth: the meaning of his life, ministry, death, and resurrection; the doctrine of Jesus as man and God and its application to contemporary experience; the meaning of Christ as savior in a global, multicultural world. (4 units)

38. Contemporary Catholic Theology

A treatment of recent attempts within Catholic theology to interpret and articulate ancient faith traditions regarding the meaning of faith today. Contemporary assessments of classic theologies as well as a

survey of contemporary Catholic approaches to the interpretation of Scripture and traditions. (4 units)

40. Exploring Judaism: Spirit and Practice

Provides an opportunity to explore the spirit and practice of Judaism through some of its most ordinary and extraordinary traditions. Imagine a spiritual practice in which resting is, itself, a sacred act; a spiritual practice in which every trip to the grocery store is an invitation to embrace a divine mystery and humane ethics; in which thoughtful study is a form of prayer, questioning is a gesture of faith, and everyday activities are occasions for blessing. (4 units)

43. Catholic Social Thought

Focuses on the evolution of Catholic social thought, methodologies being applied to address social questions in the modern world, formation of the public conscience, responsibility toward the common good, and Christian engagement in the process of social transformation. (4 units)

45. Christian Ethics

Focus on the moral implications of the Christian commitment, formulation of the principles of a Christian ethic, and their application to areas of contemporary life (e.g., to wealth and poverty, violence and nonviolence, bioethics and interpersonal relations). Some sections require a SCCAP or Arrupe Center community placement. (4 units)

46. Faith, Justice, and Poverty

Examines biblical theologies of social responsibility, major theologians on poverty, and current appropriations of these traditions. Includes SCCAP or Arrupe Center community placement. (4 units)

50. Catholic Theology: Foundations

An examination of the fundamental theological issues of Catholicism such as: the experience of God, revelation and faith, the historical foundations of the tradition, the mystery of Jesus, grace, sin and redemption, the Church sacraments, and religious pluralism, etc. (4 units)

51. Catholic Theology: Spirituality

Explores some of the varied expressions of Christian faith in the Catholic Church. Examines the tools and methods of Catholic theology. Reading, reflection, and discussions encourage students to formulate theological questions. (4 units)

53. Religious Imagination

Attempts to stimulate the imagination and clarify its relation to religion through reflection, written essays, and discussions of selected pieces of literature, films, and art. (4 units)

54. Meditation

Intensive study and practice of meditation. Daily meditation required. No lectures. Class discussion, weekly brief essays. (4 units)

55. Spirituality and Literature

Uses literature (mostly modern) to discover and analyze the way spiritual themes are expressed and appreciated in this medium. (4 units)

60. Hispanic Popular Religion

Study of the popular expressions of faith of the Hispanic people, exploring their theological underpinnings. Includes both classroom and field experience. (4 units)

62. Medical Ethics in Christian Perspective

Introduction to the field of biomedical ethics, with special attention to the guidance and challenges that a Christian perspective provides. Examination of ethical principles and their application to current topics, with attention to how conflicting approaches can all claim to be "Christian." (4 units)

65. U.S. Hispanic Theology

Acquaints students with the historical development of Hispanic theology in the United States. Attention will be given to the works of representative U.S. Hispanic theologians and to the themes and concerns that these works address. (4 units)

70. Catholic Ethics and Jesuit Spirituality

A foundational introduction to the Catholic theological tradition through two central lenses: the process of Ignatian discernment and Catholic moral theology. Exploration of Ignatius' insights that yielded both the Society of Jesus and a creative framework for the Christian life. (4 units)

71. Mysticism in Catholicism

An introduction to mysticism in the Catholic tradition and its relationship to both theology and spirituality. Special attention to the origins of the term within Catholicism, issues of gender, the relationship between hierarchy and a personal relationship with God, and historical controversies and discussions surrounding the possibility of union with God. (4 units)

72. Comparative Mysticism in World Religions

Focuses on the mystical traditions in Buddhism, Islam, Judaism, and Catholicism. Analyzes primary sources in their historical contexts in order to determine how contemplation leads to either peaceful or violent actions. Special attention paid to the links between these contemplative traditions in both war and nonviolence. (4 units)

77. Encounters of Religion and Globalization

Religions encounter one another all the time, with varying results—dialogue, conversion, syncretism, and wars. This course examines the dynamics and venues for these encounters today, focusing on the communities and organizations that make Silicon Valley's diverse religious landscape. (4 units)

79. Women in Christian Tradition

History as written mostly by men has obscured the important role that women have played in Christian tradition. This course will investigate the official and unofficial positions women have held in the Christian church as well as read works by particular Christian women in an attempt to restore the women to their rightful place in Christian history. (4 units)

82. Witches, Saints, and Heretics: Religious Outsiders

Survey of the experience of religious exclusion across the realms of magic, holiness, and heterodoxy. While anchored in the premodern Christian tradition, the course also explores more contemporary phenomena, persons, and movements. (4 units)

83. Dialogues Between Science and Religion

Explores and dialogues with the distinct methods and ways of thinking in theology and science. Examines how the interpretations of the scientific (cosmology, biology, and ecology) and the theological worldviews of the 21st century relate to questions concerning God, origins of the universe, evolution, creativity, human experience, and ecology. (4 units)

84. Spirituality and Sustainability

Investigation of the challenges of integrating ecological consciousness and environmental leadership with the practice of spirituality. Examines the diversity of religious responses to the global sustainability crisis, and the potential of consciousness to facilitate social transformation in light of Christian, Buddhist, and Hindu spiritual traditions. (4 units)

86. Spirituality and Engineering

Reflects on and compares the methods and practice of the engineering sciences and theology, especially spirituality. Both affect the way we live, both endeavor to transform the world. (4 units)

UPPER-DIVISION COURSES: THEOLOGY, ETHICS, AND SPIRITUALITY (TESP)

103. Religious Disillusionment: Augustine through Freud

Examines the complex phenomenon of religious disillusionment with particular focus on the intellectual development of Augustine of Hippo. Will consider his serial disenchantment with various strategies for securing answers to foundational questions of his life. (5 units)

104. Race and Religion in Asian America

What are the ethical demands of religious pluralism in church and civil society? The lived religions and ethnic diversity within and among Asian Pacific American (APA) communities provide unique opportunities for us to explore: what happens at the intersections of race and religion; the challenges of negotiating identities for self and community; and making commitments and ethical choices accordingly. (5 units)

106. Christian Symbol and Ritual

Investigates the role of symbol and ritual in human experience and then applies the insights from that study to an investigation of Christian symbols and rituals. The class will not only study rituals but also visit, participate and analyze rituals from various Christian traditions. (5 units)

109. Hispanic Spirituality: Guadalupe

One of the most popular Marian devotions for Hispanic people (of primarily Mexican descent) is that of Our Lady of Guadalupe. Study of the history and tradition of Guadalupe, exploring its religious and spiritual significance in both the past and the present. (5 units)

111. Latin American Liberation Theology

In many parts of the world, people are murdered for their faith. The facts of martyrdom are important to document, to study, and reflect upon in order to evaluate the intertwining of faith and political realities. Focuses on the significance of one martyr, Archbishop Oscar Romero of El Salvador, whose life and death exemplify the consequence of socially conscious faith. (5 units)

115. Tradition and Interpretation

An examination of the status of a "Christian tradition" in light of classical, modern and post-modern theories of interpretation, and in relation to the historical developments of religious pluralism and social fragmentation. Theorists studied include Aquinas, Newman, Heidegger, Gadamer, Tracy, and Derrida. (5 units)

117. God in Contemporary Thought

Explores the reality and meaning of God in cultures that no longer accept God as given and/or as a question for human existence. An examination of four major theological responses to the issue. (5 units)

118. Clare of Assisi and Ignatius of Loyola

Explores with depth and clarity Clare of Assisi, patroness of Santa Clara University, and Ignatius of Loyola, founder of the Jesuits. Inquiring into medieval, modern, and contemporary world views, this course considers how their distinct legacies remain lights for us. Facilitates students' understanding of their spirituality, vocation, and work in the world. (5 units)

121. The Church and the Future

Examines several theories about what the Roman Catholic Church might look like in the future. The effects of globalization, mandatory celibacy, and the unfulfilled legacy of Vatican II. Given the faith-conviction that the Church will not fail, what might it look like in 2040? (5 units)

124. Theology of Marriage

An examination of human relationships, intimacy, sexuality, and marriage through the social sciences, philosophy, and theology, and exploration of human love in the unconditional commitment to spouse as the expression of divine love. (5 units)

125. Belief and Unbelief

The question of religious belief has been a vital part of the world's cultures and civilizations. In the modern West, however, new and dramatic forms pose the question. Course studies why and how this is so through reading a variety of proponents of both believers and unbelievers, including Nietzsche, Camus, Freud, and Teilhard de Chardin. (5 units)

126. Spirituality and Aging

Theologians, philosophers, and developmental theorists ponder how to reach old age with wisdom and grace; some see the search for an answer as the most significant task of our maturity. Course addresses this question for those considering their own future or the aging of loved ones, as well as for those working toward a career in gerontology, religion, or psychology. (5 units)

128. Catholic Theology and Contemporary Culture

Attempts to chart the complex process by which Catholicism both freed itself from its traditional fear of modernity and articulated a program for apostolic insertion into the modern world. Special emphasis placed on a comparative study of the ecclesiologies of Trent, Vatican I, and Vatican II. (5 units)

131. Feminist Theologies

Through the analysis of a selected sample of feminist theological voices and themes, explores the phenomenon of feminist theologies in their emerging unity and diversity. Focuses on themes of inclusion, exclusion and representation, which have also been major catalysts in the emergence of diverse feminist theologies. (5 units)

132. Telling Your Story: Discerning Vocation

Provides students with an opportunity to ask where, in the future, they may be called to go in life by considering how, in the past, they have been led to this moment. In an attempt to discern significant patterns of value, emphasis will be given to the range of narrative strategies that individuals use to reflect back on the stories of their lives. In addition to reflecting on their own histories, students will study both narrative forms (e.g., novels, autobiography, films) as well as more critical works (e.g., theological, philosophical) pertinent to the theme of discerning vocation. (5 units)

133. God: Mystery and Trinity

Explores classical and contemporary approaches and challenges to the existence and experience of God. Focuses on the Christian experience of God, and examines the Christian understanding of God as Trinity. (5 units)

134. Popes, Peasants, and Prophetesses

The "Middle Ages" comprises half of the entire history of Christianity. This period of a thousand years is, not surprisingly, hardly a unity. Even during its greatest period, diversity abounded. This course can only touch on the sometimes disconcerting varieties of experience that scholars sadly lump into the "Middle Ages." We will study not only the theology, but also the church structures, and the popular beliefs of this most misunderstood and underestimated period of Christian history. (5 units)

136. Rhetorics of Solidarity

Starting with the Jesuit claim of education for "solidarity for the real world," students explore the rhetorics of solidarity in different intellectual and faith traditions and how these rhetorics frame issues like poverty, intolerance, suffering, and globalization to inspire and justify action on behalf of others.

Course requirements include field work with local organizations whose missions include solidarity across religious, economic, ethnic, or geographic differences. (5 units)

137. Theology of Death

An examination of the experience of death and the meaning of Christian hope in light of the death and Resurrection of Jesus; the meaning of the Christian symbols of judgment, heaven, hell, and the end of history. (5 units)

138. Contemporary Theology of Paul Tillich

An examination of the philosophical and theological thought of one of the great 20th-century Protestant theologians, with special emphasis on his theology of culture, and his effort to reinterpret the Christian message for contemporary people. (5 units)

139. Catholic Theology and Human Sexuality

Explores theological understanding of marriage, celibacy, and homosexuality; history, development, and critique of Catholic Church teaching on human sexuality; sexuality, God and spirituality. Readings from the Bible, classical theologians, Roman Church documents, contemporary theologians, historians and theorists. (5 units)

143. Theology and Ethics of Thomas Aquinas

A study of the life, thought, and ethics of Aquinas. Basic topics to be discussed include: the existence of God, human nature and human participation in society. (5 units)

144. Theology and the Law

A team-taught course meeting two evenings a week (Monday and Wednesday) in which two professors, one in law and one in theology, discuss a number of contemporary legal/ethical issues from both perspectives. (5 units)

147. Religious Autobiography

Exploration of spirituality through selected Christian autobiographies. (5 units)

150. St. John of the Cross: An Inquiry into Prayer, Contemplation, and Union with God

Examines the writings, life, spirituality and theology of St. John of the Cross, a 16th-century Spanish mystic, and the implications of his writings for a theologically informed spirituality. (5 units)

151. Issues in Theology and Science

Explores how theology and science arrive at views of the world and the basis of conversation between theology and science. Theoretical applications drawn by exploring Galileo, Darwin, evolution, cosmological theory, and ecological theology. (5 units)

152. Faith, Ethics, and the Biodiversity Crisis

Critical investigation of the global collapse of biological diversity. Religious implications of this environmental crisis, and a survey of the religio-ethical analysis and response by major faith traditions in light of the greening of religion. Examines the role that ethics can play in articulating conservation initiatives. (5 units)

153. Catholic Themes in Literature

Investigates a Catholic vision through novels and other literature either written by Catholics or using Catholic themes. Extensive reading, writing of reflective essays, and class discussion. (5 units)

154. Theology in the Daily News

An examination of religious and theological dimensions of contemporary culture through critical analysis of current events. (5 units)

155. Catholic Social Teaching

Explores the evolution of Christian social thought as it has developed and expanded throughout the Church's history. Special emphasis on the Church's relationship to the world since Vatican II. Critical analysis of recent pastoral letters. (5 units)

157. Ethics in the Health Professions

Introduction to the major issues in biomedical ethics. Basic principles of biomedical ethics, genetic interventions and reproductive technologies, euthanasia, professional responsibilities, confidentiality, and public policy issues regarding the system of delivery of health care. (5 units)

159. Ethics of War and Peace

Examination of the history of moral deliberation about war and peace in Western religious traditions, as well as contemporary, theological, and philosophical analyses of the diverse moral principles that those traditions have generated. Studies the application of theological and moral reasoning to contemporary wars. (5 units)

161. Environmental Ethics

Critical exploration of environmental ethics: the theological and philosophical principles underlying contemporary ecological attitudes; issues such as the rights of nonhuman animals, mass extinction of species, corporate responsibility, human population control, and the moral dimensions of global ecological dilemmas; development of an integrated theological understanding of human life on earth. (5 units)

163. Christianity and Politics

An ethical investigation into the relationship between Christianity and the political order and into the contemporary experience of this relationship, drawing on Scripture, Augustine, Aquinas, Luther, and Calvin. A special focus on contemporary issues of Christianity and political ethics. (5 units)

167. Christian Ethics and Global Human Rights

Examines challenges for Christian ethical thought and practice posed by the new interactions of a globalized community. (5 units)

169. Jesuit Perspectives

Overview of the Jesuits, their origin and history, their view of education, their ethical and spiritual world view. (5 units)

170. Homosexuality and Catholic Theology

Examines Church teaching and contemporary discourse about homosexuality. Scripture, natural law, and recent teaching by the Roman magisterium are analyzed. The meaning of homosexuality, the emergence of the gay liberation movement, and theological perspectives are considered. (5 units)

171. Mysticism in Action

What kind of action results from contemplation in mystical traditions, East and West? Studies the links between contemplation and action in both Zen and Catholicism, focusing on the works of Buddhist monk Thich Nhat Hanh and Catholic monk Thomas Merton. Examines how and why contemplation can be useful in making difficult ethical decisions, such as support for or opposition to war. (5 units)

173. Religion, Science, and the Environment

Recognizing that religion and earth's ecology are inextricably linked, course re-examines attitudes toward the natural world and the relationship between scientific and religious perspectives on nature. Topics include historical roots of the eco-crisis, cosmology, and eco-theology. Arrupe Center community project may be included. (5 units)

175. Women's Theologies from the Margins

Women of diverse cultural communities enrich theology by voicing their lived experience from global and local perspectives. Course explores the theological works of African, Asian-American, and U.S. Latina women in their historical and cultural contexts. (5 units)

176. Finding Your Own Spirituality

A theological and personal exploration of the desire for meaning in one's life, looking at "meaning," through famous religious quests: theological, mystical, and worldly. Students examine what is real and ideal, and the room left for God, no matter which tradition. (5 units)

181. Christian Sexual Ethics

Covers basic presuppositions for sexual ethics in a Christian context. It will deal with the specific topics of the morality of sexuality, lust and cybersex, contraception, homosexuality, and nonmarital sex. (5 units)

182. Peacemaking: Theological Models, Modern Examples

Investigates the theological issues surrounding understandings of peace and peacemaking. Looks at the causes and dynamics of conflict and violence (interpersonal and global); the theological bases of peacemaking; the causes and dynamics for the institution of peace (interpersonal to global); nonviolence; conflict resolution; activism and peace movements. (5 units)

183. Spiritual Exercises and Christian Theologies

Pursues the questions: What are 'spiritual exercises,' and what makes such exercises Christian? Examines the Greek philosophical origins of spiritual exercises as well as their appropriation in Christian theology. (5 units)

184. Jesus Across Cultures

An exploration and study of selected significant and diverse interpretations of Jesus of Nazareth, and of the historical and cultural contexts that have shaped images and theologies of Jesus Christ (or Christologies). Approaches include biblical, Asian, African, Latin American, and feminist interpretations. The aim is critical exposure to the cross-cultural diversity of understandings of Jesus within Christianity itself. (5 units)

185. Rahner: Foundations of Christian Faith

A careful and critical reading of Karl Rahner's theology, with focus on his understandings of the human person, grace, and Christ within the context of Catholic faith. (5 units)

186. Christology and Religious Pluralism

An examination of such major theologians as Karl Rahner, Jacques Dupuis and Roger Haight on the meaning of Jesus Christ in relation to non-Christian religions. (5 units)

187. Christ and Catholic Theology

A study of contemporary Catholic Christology approached as Christology "from below." Initial consideration of some fundamental theological concepts and then Jesus Christ as a historical figure and object of faith. Course pivots around Jesus' proclamation of the "Kingdom of God" and considers his history through the resurrection. (5 units)

193. The Rise and Meaning of Modern Atheism

An exploration of the religious and philosophical factors giving rise to modern atheism, and to the role and meaning of atheism within religious discourses today. (5 units)

198. Practicum

(1–5 units)

199. Directed Readings and Research

For religious studies majors only. (1–5 units)

LOWER-DIVISION COURSES: RELIGION AND SOCIETY (RSOC)

7. South Asian Religious Traditions

Introduction to the major religious traditions of India and neighbors: Hinduism, Buddhism, Jainism, Sikhism, and Islam; historical development of each faith, what is distinctive in each tradition; and particular attention to the ways in which these traditions have influenced each other. (4 units)

9. Ways of Understanding Religions

Introduces the categories by which religion is formally studied. Explores distinct perspectives or ways of thinking about religion (e.g., psychological, phenomenological, anthropological, theological, and sociological); also considers a variety of religious data (e.g., symbols, myths, rituals, theologies, and modern communities). (4 units)

10. Asian Religious Traditions

Addressing Hinduism, Buddhism, Confucianism, and Japanese Zen, focuses on four different religious issues and how each Asian tradition has defined the nature of the divine; human effort versus faith and devotion; social ethics versus inner mystical experience; and the interplay of religion and culture. (4 units)

18. Religion and Culture: Africa

Introduces the study of religion from the social perspective of how religion shapes African cultures and is thoroughly shaped by them in turn. Examines texts, history, ritual practices, and modern forms of engagement with the world. (4 units)

19. Egyptian Religious Traditions

An investigation of the ways in which Egyptian culture has been shaped by the religious traditions of ancient pharaonic polytheism, Coptic Christianity, and Islam. Attention to the influence of pharaonic religion on Coptic Christian and Egyptian Muslim ritual practices, including how these are reflected in the writings of contemporary Egyptian Muslim authors. (4 units)

23. Religion and Social Reconciliation

The aim of this course is to explore the role of religion in social reconciliation. The process of linking religious virtues to civic virtues to reform social relationships calls us to evaluate the impact of religious virtues in public morality, and rebuilding fractured social relationships. Topics to be explored include: foundations of public values, Christian understanding of social reconciliation, Christian pacifism and political realism, forgiveness, justice and politics, and models of peace education. (4 units)

33. Maya Spirituality

Introduces the spirituality of the Maya, and its roots in Mesoamerican culture. Course focuses on the contemporary public re-emergence of ancient practices, with attention to Maya participation in evangelical religions, and enculturated Catholicism. (4 units)

41. Women's Spiritualities

Examines women's spiritualities in diverse religious, social, political, historical and contemporary contexts. Attention to women's interpretations of experiences of the sacred, understandings of self-knowledge, spiritual praxis, personal relations, and solidarity with others. (4 units)

45. Muslims in America

An in-depth look at the Muslim community in the United States and exploration of Islamic practices in America. Attention to the contribution of Muslims locally in the Bay Area. The course aims to provide students with a context for building greater understanding of American Muslim life, beliefs, and practices. (4 units)

46. African Religions

Examination of African history and its many cultures through the lens of key religious ideas, practices and cosmologies. The

power of history, geography and political domination over the shaping of religion is matched by the power of religion as a medium of cultural expressiveness and political resistance. (4 units)

49. Religion, Politics and Civil Society

What should be the relationship between religion, politics and civil society? Some people think that particular religious tradition should play no part; others believe that it should. This course considers these arguments as well as exploring the interplay between religion, political behavior and civil engagement, not only in the United States but around the world. (4 units)

51. Religion in America

Traces the development, character, and impact of religion in America from the precolonial era to the present. Course readings and discussions will center on the relationship between religion and the development of American culture. Includes Native American traditions; slavery and religion; the rise of revivalism; gender; religion and war; immigration; and modern pluralism, etc. (4 units)

65. Early Christianity

A selective survey of the history of the Christian church from its beginnings through the fifth century. Examines the origins of Christianity within Judaism and the Greco Roman world, and studies how it moved from a marginal apocalyptic sect in Judaism to the exclusive religion of the Roman Empire. Also investigates some of the practical outcomes of Christian belief in the way it was lived. *Also listed as CLAS 69.* (4 units)

76. Representing the Holocaust

Interdisciplinary in design, the course explores how various forms of representation (personal narratives, fiction, theology, ethics, film, music, art, and liturgy) create different meanings about the Holocaust. (4 units)

80. Protestant Christianity

Origins and development of Protestant thought and Protestant ecclesiastical institutions. Special attention to U.S. Protestant Christianity and its impact on U.S. political and social life. (4 units)

81. Islam

Introduction to the Islamic tradition focusing on the dialectic between normative theology and popular devotion. Readings include the Quran, Sufi literature, and devotional poetry. Discussion of Quranic concerns in the Sunni and Shia traditions, ecstatic mysticism, Islamic law, and contemporary issues relating to the status of women, Westernization, and modernity. (4 units)

82. Shia Islam

Introduction both to Islam in general and to the Shia tradition within Islam. History and development of Shia doctrine, with particular attention to forms of Shia ritual in India. No previous coursework in Islam required. (4 units)

85. Hinduism

Exploration of the historical development, theologies, symbols, rituals, scriptures, social institutions, and 20th-century politics of Hinduism, primarily in India. Main focus on the interaction of religion and culture. (4 units)

86. Buddhism

Exploration of the whole Buddhist tradition, including Indian origins, Theravada traditions of Southeast Asia, Mahayana traditions of Central and East Asia and Buddhism in the West. Emphasis on cultural impact of religion, Buddhist philosophy and practice, and modernizing tradition. (4 units)

88. Chinese Religions

Focuses on the historical development of Chinese religions—Confucianism, Daoism,

Buddhism, and their philosophies, as well as the interface between folk religion, society, and political institutions in traditional and modern China. (4 units)

89. Japanese Religions

Focuses on the historical development, doctrines, institutions, aesthetics, and literature of the religious traditions in Japan—Shinto, Buddhism, folk, and new religions. Special attention to Zen Buddhism and modern Shinto. (4 units)

91. Native Spiritual Traditions

Introduction to Native American spiritual traditions in the Americas. Examines myth, the diversity of ceremonial practices, and the historical and political contexts in which native peoples have manifested and adapted their religious ways, with an emphasis on their recent reaffirmation of indigenous traditions. (4 units)

99. Sociology of Religion

Using early and American Christianity, examines how various social forces shape the religious beliefs and practices of people of faith. Draws on a number of sociological perspectives, looking both at their historical and philosophical underpinnings and at what they can tell us about faith in the modern world. (4 units)

UPPER-DIVISION COURSES: RELIGION AND SOCIETY (RSOC)

104. Ways of Worship in Silicon Valley: Looking Around

Uses the department's ongoing Local Religion Project, which attempts to learn about religion, community, and diversity in the Bay Area. Guidelines for an individual research project will help provide experience and evidence of theoretical issues and will also aid the (multimedia) documentation of this area's vital religious landscape. (5 units)

106. Zen in Theory and Practice

Explores the Chan/Zen traditions of East Asian Buddhism from the historical, theoretical, and practical perspectives. Students will explore the history and teachings of the Zen traditions, and then will learn how to undertake Zen meditative practice. The focus will be on bringing the teachings and tradition to life by experiencing them and learning about the way that practice itself drives changes in theory. (5 units)

108. Buddhist Spiritual Practices Today

Drawing on sacred texts as well as modern sources, this class will investigate a diverse range of Buddhist practices, from Buddhist monasticism to the use of Buddhist principles in modern psychotherapy. Starting with an overview of the basic tenets and cosmology, we will then study the theory and practice of ethical conduct, meditation, and ritual. Attention will be paid to how Buddhism has been shaped by the cultural milieus of East and Southeast Asia, and the relationship between tradition and modern practice. (5 units)

110. Film and Religion

Explores film as a medium for religion today. Examines theological, mythological, and moral themes; changing portrayals of religious leaders and groups; and the mutual influence of religious belief and filmmaking in the 20th century. (5 units)

111. Inventing Religion in America

Explores the spiritual creativity that stands at the center of the American experience and asks what characteristics facilitated such religious diversity. Looks at beliefs and practices, and also historical contexts. Includes Mormons, Christian Science, Jehovah's Witnesses, the Nation of Islam, Scientology, and Heaven's Gate, etc. (5 units)

115. Tibetan Buddhism: A Cultural History

Provides an overview of Tibetan religious history and the fundamental beliefs and practices of Tibetan religious traditions. Focuses on devotional traditions centering around saints, sophisticated systems of meditation and ritual, and the experience of women in Tibetan Buddhist traditions. Also explores visual media such as iconography and cinema. (5 units)

119. Media and Religion

Examination of the religious, theological and ethical issues and perspectives raised by various media: print, visual, audio, multimedia, and virtual. Special attention will be given to the nature of their relationship and the religious and spiritual issues currently present in their interface. (5 units)

121. Representing Religion in World Cinema

Examines films from various cultures and the ways religion is portrayed, stereotyped and represented in them. Investigates both sacred texts and traditions of specific religions and the ways film enhances, provokes or misrepresents various religious themes and motifs. (5 units)

122. Religion and Psychology

Examines Carl Jung's understanding of Christianity through an analysis of his lifelong endeavor to reinterpret traditional faith for modern people. Studies and critiques Jung's views on the Trinity, Mass, evil, the feminine, and the after-life from current theological and feminist perspectives. Includes Jung's debate with Dominican theologian Victor White and the role of the unconscious in religious experience. (5 units)

123. Religions@Silicon Valley

Is something unique happening in Silicon Valley's religious landscape? This seminar addresses that question through different perspectives on the Valley's culture, scholarly approaches to the Buddhist, Catholic, and Muslim experiences in America, and interactions with local congregations. (5 units)

130. East Asian Buddhism

Explores in depth the major traditions of East Asian Buddhism. Following a brief survey of their teachings and history, focuses on several traditions (Chan/Zen, Pure Land Buddhism, and Soka Gakkai) that are represented in the Silicon Valley area, and examines in depth the practices advocated by these traditions, as well as the social implications of these practices. (5 units)

131. Tantra in Theory and Practice

Examines the development and global spread of tantric traditions. Beginning with South Asia, explores the development of the body-oriented tantric movement and its institutionalization in Hindu and Buddhist religious contexts. Explores spread of tantra throughout Asia and the West, and transformation of tantric traditions in Western cultural contexts. (5 units)

136. Religion in Latin America

Develops intellectual tools to explore with depth and clarity the recent religious pluralism in Latin America and the Caribbean. Examines distinct historical legacies; sociocultural contexts; political and economic processes; and the role that faith, belief, and "conversion" play in people's lives and cultures. (5 units)

140. Animals, Environment, and World Religion

An investigation of the resources offered by world religions for addressing current crises related to the status of animals and the natural environment. Attention will be given to traditional views of human-animal relations as reflected in various scriptures, as well as the work of contemporary thinkers who offer new perspectives on environmental theology and issues such as animal suffering. (5 units)

141. Religion and Ecology: Contemporary Voices

An examination of religious attitudes toward nature in contemporary North America, and such emerging perspectives as deep ecology, eco-feminism, earth-based religion, spiritually grounded environmental activism, and contemporary cosmology. Considers how religious outlooks affect human beings' lived relationship with the greater natural world. (5 units)

144. Gender, Body, and Christianity

Focuses on attitudes and perceptions about the body and gender roles in the history of Christian thought. Topics include ritual nakedness in early Christianity; the appropriation of sexual stereotypes from Greco-Roman culture; sexual practice in Christian communities; gender metaphors for the Divine; changing gender roles in Church and Society. (5 units)

148. Religion and the Presidency

Explores the interaction of religion and presidential politics in the United States, from the founding fathers through the current presidential election, with an emphasis on 1960 to the present. (5 units)

154. Islamic Jesus

Investigation of various understandings of Jesus in Islam, beginning with an introduction to Islamic theology and Qur'anic Christology, emphasizing Muslim scriptural understandings of Jesus as a prophet and healer, followed by representations of Jesus in Sufi mysticism, Medieval Islamic folklore, and modern Arabic literature, with consideration of how Jesus can play a role in Muslim-Christian dialogue. (5 units)

156. Buddhism and Globalization

Critically examines the changes and transformations that Buddhist traditions are undergoing in the contemporary world. While the topics and traditions covered will vary, this course will employ social scientific methodologies to enrich our understanding of Buddhist traditions and Buddhist groups in North America. (5 units)

157. Religious Tradition and Contemporary Moral Issues

Explores selected moral issues and analyzes responses given to these issues by the selected religious traditions. Issues to be analyzed will include those pertaining to human life (e.g., euthanasia, HIV/AIDS), human sexuality (e.g., marriage) and global issues (e.g., war, environmental degradation, and poverty). The central approach will be to compare and contrast Western responses with responses from other cultural and religious systems in order to highlight points of difference, points of similarity, and common ground. (5 units)

160. U.S. Catholics in American Culture

Examines Roman Catholicism in North America from Colonial times to the present, the mutual influence of Roman Catholicism and American society on the formation of various ecclesiologies, and ways of living in tension between two allegiances and two life-worlds: Catholic and American. (5 units)

164. Religion, Race, and Ethnicity in America

Religion and race constitute two of the central threads of the American experience. Course traces their complex relationship by examining the interaction of religion with race and ethnicity in a variety of social and historical contexts. Particular attention paid to the shifting meanings of racial and ethnic categories, and how other categories of analysis, especially class and gender, both illumine and complicate the relationship of religion with race and ethnicity. (5 units)

168. Gender and Judaism

Explores ideas and images of Jewish "femininity," "masculinity," and "queerness" generated by Jewish and non-Jewish cultures

throughout history to the present. Considers the political/economic, religious, and other cultural dimensions of these images and ideas. (5 units)

170. Religion, Gender and Globalization

Using feminist ethics as a framework, this course examines the ethical issues at the intersection of religion and globalization and unpacks the implications of this intersection for women. Focuses on the human rights of women and examines ways in which globalization has affected, supported or undermined the human rights of women and the role of religion in their lives. (5 units)

173. Modern Jews and Judaism: Text and Film

Explores the ideas and experiences that have shaped Jews and Judaism in the modern period through a variety of readings and films. Topics include enlightenment and emancipation, Hasidism and secularism, Zionism and socialism, immigration and assimilation, anti-Semitism and the Holocaust, denominationalism, feminism, Jewish Renewal, and the future. (5 units)

176. Religion in the Making of American Identities

Provides historical and in-depth coverage of selected themes in the modern U.S. religious landscape, surveying themes and institutions in U.S. religion past and present, tracing the development of U.S. religion from the early 17th century to the post-World War II era. (5 units)

184. Race and Religion in the United States

Begins with an examination of the living situation of people of African descent in the United States, as well as an analysis of their social context—economic, educational, and political aspects. Considerations are then given to the effects the Christian message has had in this situation. (5 units)

185. Gender in Asian Religions

The participation of women in religion (Hinduism, Islam, and East Asia) as shaped by notions of female purity and pollution. The role of such beliefs within religious communities. Marriage, sexual segregation, menstruation, motherhood, monasticism, and shamanism. (5 units)

188. Religion and Violence

Examines the historical and contemporary relationships between religious ideologies and personal and institutional practices of coercion, force, and destruction. (5 units)

190. Islam: Reformation and Modernity

Comparative study of contemporary Islam. Beginning with the study of origins and basic doctrines of Islam, course will study its development to the modern world. Main focus will be on Islam's interaction with different cultures, emphasizing political implications of the rise of revivalism. (5 units)

198. Practicum

(1–5 units)

199. Directed Readings and Research

For religious studies majors only. (1–5 units)

DEPARTMENT OF SOCIOLOGY

Professors: Marilyn Fernandez, Alma M. Garcia, Charles H. Powers
Associate Professor: Laura Nichols *(Department Chair)*
Assistant Professors: Laura Robinson, Anke Schulz

The Department of Sociology offers a degree leading to a Bachelor of Science in Sociology. A solid undergraduate foundation in sociology secures the analytical skills needed to undertake professional degree programs in sociology, business, law, and social services or to embark on a number of careers from management to research. A minor in sociology is available. Honors thesis options also are offered to qualified majors.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum requirements for the Bachelor of Science degree, students majoring in sociology must complete the following departmental requirements:

- SOCI 1
- ANTH 3
- SOCI 118, 119, 120
- SOC 121
- SOC 170
- Four other approved upper-division courses in sociology (two each from two of four clusters: criminology/criminal justice; immigrant communities; inequalities; organization/institutions

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in sociology:

- SOCI 1, 33, 117
- Three other approved upper-division sociology courses excluding 118, 119, 120, and 121

LOWER-DIVISION COURSES

1. Principles of Sociology

Introduction to the field of sociology. Emphasis on the major sociological perspectives and the basic elements of sociological analysis. Introductory exposure to research methodology. (4 units)

11A. and 12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Course one will cover disruption of global cultures in the context of economic history and course two will cover emerging global culture in the age of the Internet. (4 units each quarter)

30. Self, Community, and Society

Exploration of a specific topic related to the self, community, and society. Use of sociological theories, research, community-based learning, and civic engagement activities to help students analyze and explore the role of the individual in influencing community and society as well as how the individual is shaped by these entities. (4 units)

33. Social Problems in the United States

Overview of contemporary social problems in the United States from a sociological perspective, with a major emphasis on the ways race, class, and gender shape the development of specific social problems and the public policies offered to address them. Topics may include the economy, poverty, homelessness, and social inequality. (4 units)

49. Computers, the Internet, and Society

Explores the ways that technological and social change interact and affect each other through examination of the development and ramifications of the personal computer and the Internet. In particular, develops a sociological analysis of cyberspace and virtual reality as new social spaces with emerging institutions, practices, and implications for personal identity. (4 units)

65. Crime and Delinquency

Broad survey of major issues surrounding the causes and nature of, and solutions to, the problem of crime and delinquency in the United States. (4 units)

91. Lower-Division Seminar in Sociology

Seminar for freshmen and sophomores on selected issues in sociology. *By permission of the instructor and sociology chair only.* (4 units)

UPPER-DIVISION COURSES: THEORY, METHODS, AND CAPSTONES

117. Sociology's Analytical Frameworks and Conceptual Approaches

Considers sociology as an integrated and coherent discipline by reviewing the development of different analytical frameworks which, when considered together, convey much of the conceptual power and rich history of the discipline. Required of all sociology minors. Does not fulfill the SOCI 119 requirement for the major. (5 units)

118. Qualitative Methods

Provides students with an understanding of qualitative methods for social research by focusing on (1) classical and contemporary sociological works employing qualitative methods; and (2) a selection of qualitative methods and techniques in sociology. Students gain hands-on experience by producing a series of qualitative research projects. *Prerequisites: SOCI 119 and 120.* (5 units)

119. Sociological Theory

Provides an overview of sociological theory stressing the role of theory in the scientific method. This course is required of all majors and will not fulfill the SOCI 117 requirement for the minor. *Prerequisites Concurrent enrollment in SOCI 120.* (5 units)

120. Quantitative Methods and Applied Statistics

Application of quantitative research designs and statistics to empirically examine sociologically relevant research questions, with attention to the scientific reasoning behind quantitative methodology. Statistical analyses conducted using a statistical package such as SPSS. *Prerequisite: Concurrent enrollment in SOCI 119.* (5 units)

121. Research Practicum

Collaborative research project conducted under the direction of a faculty member. *Prerequisites: SOCI 118, 119, and 120.* (5 units)

170. Applied Sociology

Demonstrates the application of sociological research and insights to the challenges of modern business, human service, and public sector organizations. Practice components bring students into contact with people who are incorporating sociology to improve the functioning of their organizations and to inform policy-making. (5 units)

UPPER-DIVISION COURSES: CRIMINOLOGY/CRIMINAL JUSTICE CLUSTER

158. Deviant Behavior

Examination of deviant behavior such as crime, mental disorder, and alcoholism. Social factors in the etiology and control of deviant behavior. (5 units)

159. Sociology of Crime

An examination of the relationship between crime and society with a focus on crimes such as juvenile crime, crimes against women and children, family violence, illegal drug trafficking and use, white collar crime; philosophies of punishment, prisons and prison sub-cultures, the death penalty; theories of criminal behavior. (5 units)

160. Law in a Changing Society

Explores the law in relationship to the changing character of contemporary society. Legal issues raised by technological change (e.g., intellectual property rights, privacy) and general social change (e.g., shifting patterns of family, ethnicity, immigration) receive special attention. Focus on American legal institutions, with attention to other countries for comparative purposes and to highlight legal trends resulting from globalization. (5 units)

161. Sociology of the Criminal Justice System

An examination of the major issues and programs in the criminal justice system in the United States. Focus on the socio-historical context and functioning of adult and juvenile investigation, court system, corrections system, and the restorative justice model; impact of race and class in the functioning of the justice system. (5 units)

UPPER-DIVISION COURSES: IMMIGRANT COMMUNITIES CLUSTER

137. Social Change

Significant trends and issues in contemporary U.S. society and in the world. Utility of sociological concepts, principles, and theories for understanding social change. (5 units)

138. Demography: Population and Resources

Global, regional, and national population changes and the effects on people, groups, societies, and their environment. Topics include the dynamics of population change across different regions of the world (the developed versus the developing regions of Asia, Africa, and Latin America), communities, and families. (5 units)

150. Ethnic Enterprises

Examination of economic, historical, cultural, and political factors related to the origins and development of ethnic enterprises in the United States. (5 units)

180. Immigrant Communities

For juniors and seniors on selected issues in the sociology of immigrant experience and communities. (5 units)

UPPER-DIVISION COURSES: INEQUALITIES CLUSTER

132. Social Stratification

Analysis of the principal lines of social cleavage within U.S. society. Emphasis on the racial, sexual, ethnic, occupational, and class divisions prevalent in the contemporary world. (5 units)

134. Globalization and Inequality

Overview of globalization as a long-term historical process. Focus on the impact in the developing world, on people moving from the developing to the developed world, displacement of some and new

opportunities for others during different periods of globalization; long-term implications of privilege and marginality that globalization has produced. Examination of case material based on Latin American, African, and Asian historical experiences; exploration of theoretical models of high rates of poverty in the developing world and practical steps to reduce marginalization on a global scale. (5 units)

135. Gender and Social Change in Latin America

Examination of the relationship between gender and the process of national and international factors related to social change in Latin America. Emphasis on selected case studies such as Mexico, Guatemala, Bolivia, and El Salvador. (5 units)

140. Urban Society and Social Conflict

Critical inquiry into urban sociology and theoretical and practical exposure to urban issues. Explores unresolved paradox in how we understand urban life; role of structural and cultural conditions in creating or adding to urban problems; issues such as poverty, immigration, housing, and the political economy of urban America. (5 units)

153. Race, Class, and Gender in the United States

Examination of the concepts of race, ethnicity, class, and gender to analyze social identities, social relationships, and social institutions. Focus on the major issues and research questions in the specialized sociological field of race, ethnicity, class, and gender research. (5 units)

165. Human Services

Introduction to the field of human services. Topics include the connections between societal understanding of social problems, programs, and policies; work and management issues in public and nonprofit human service agencies; human services in a multicultural context; opportunities to learn through community-based placements serving marginalized communities and from human service professionals. (5 units)

175. Race and Inequality

Analysis of the socioeconomic and political situation of African, Asian, Hispanic, and Native Americans in contemporary U.S. society. Topics include race and class, occupational and economic inequality, racial discrimination, the culture of poverty, cultural stereotyping, and resistance to change. (5 units)

UPPER-DIVISION COURSES: ORGANIZATIONS/INSTITUTIONS CLUSTER

127. Group Dynamics

Explores the structure and social processes that occur in small and large groups. Concepts such as power and prestige, leadership, communication networks, collaboration and conflict, game theory, and distributive justice are examined. (5 units)

148. Stakeholder Diversity in Contemporary American Organizations

Offers a serious exploration of both the ethical and practical challenges posed by the diversity of stakeholder interests in organizations. Critical reflection on the implications of client-centered approaches to organizational activity for people working in organizations, and also for structure, culture, communication, and process in those organizations. Requires a community-based learning placement working alongside and/or in the service of persons who are marginalized in the local community. (5 units)

149. Business, Technology, and Society

Examines the impact business and society have had on the development of science/technology and the transforming or potentially transforming effects of changing science/technology on business and society. (5 units)

152. Women and Men in the Workplace

Examination of the status and roles of men and women in the labor force. How gender differences are developed through socialization and some of the consequences of these differences: tokenism, sexual harassment, the "glass ceiling," and the dual-career family. Includes strategies to address gender inequality in the workplace. (5 units)

157. Sociology of Family

Examines how family forms have changed over time in the United States, including the macro causes and consequences of different family structures and role expectations. Patterns and dynamics of dating, family formation, child rearing, divorce, and extended family support systems are also covered. (5 units)

163. Sociology of Work and Occupation

Ideological and institutional characteristics of modern industrial society and some of its basic problems, such as alienation, affluence and work motivation models, primary group influences, and leadership behavior. (5 units)

164. Collective Behavior

Analytical study of collective behavior principles: typology of crowds, mass behavior, and the characteristics of publics. Introduction to social movements. (5 units)

172. Management of Health Care Organizations

Explores the sociological and practical issues of operations, financing, and management in organizations providing services for people with health problems (organizations such as nursing homes and hospitals) or people with infirmities (organizations such as senior care centers and assisted living facilities). (5 units)

UPPER-DIVISION COURSES: OUTWARD BOUND

125. Honors Thesis

Ordinarily requires an overall GPA of 3.3, a GPA of 3.5 in the major, completion of SOCI 121, and approval of a thesis proposal defining a topic, outlining a theoretically driven research design, and having a timetable for conducting various stages of the research. *May be taken only with special permission of the sociology chair.* (5 units)

198. Internship

Opportunity for students to employ sociological insights in human service/community, government, or business organizations. Students spend the majority of class time off campus and then reflect on their experiences through discussions in class and papers. May be repeated once for credit, under certain circumstances and with the approval of the sociology chair. *Prerequisites: An overall GPA of 2.7 or permission of the sociology chair is necessary. Students must register with the internship coordinator the quarter before they wish to register for the course.* (5 units)

199. Directed Reading/ Directed Research

Intensive reading in areas not emphasized by the department. Independent research on specific topics not fully covered in departmental courses. May be repeated once for credit, under certain circumstances and with the approval of the sociology chair. *Written departmental approval necessary in the quarter prior to registration.* (5 units)

UPPER-DIVISION COURSES: OTHER

133. Politics and Society in Developing Societies

Social and political change in the Third World. Relationship between economic and social development and the emergence of democratic, authoritarian, or revolutionary regimes in Africa, Asia, and Latin America. Emphasis on ways in which the international system influences development through investigation of theories of interdependence, dependency, and neoimperialism. (5 units)

162. Political Sociology

Analysis of power relations in the United States. Examination of different dimensions of power. Particular emphasis on the development of social protest movements. (5 units)

176. Elder Law

A survey of public policy issues particularly affecting the elderly. Consideration of the legal aspects of death and dying, involuntary commitment, guardianship and conservatorship, age discrimination, public benefit programs, and nursing homes. (5 units)

190. Advanced Seminars in Sociology

Seminars for juniors and seniors on selected issues in sociology or current problems of social relevance. (5 units)

191. Peer Educators

Peer educators in sociology work closely with a faculty member to help students in a course understand course material, think more deeply about course material, benefit from collaborative learning, feel less anxious about testing situations and/or to help students enjoy learning. *Enrollment is by permission of the instructor.* (5 units)

DEPARTMENT OF THEATRE AND DANCE

Professor: Frederick P. Tollini, S.J.
Associate Professors: Aldo Billingslea, Jerald R. Enos, Barbara Fraser, Barbara Murray *(Department Chair),* David J. Popalisky, Michael Zampelli, S.J. *(Paul L. Locatelli, S.J., Professor)*
Assistant Professor: Kimberly M. Hill
Senior Lecturers: Derek Duarte, Kristin Kusanovich, David Sword
Renewable Term Lecturer: Joanne Martin

The Department of Theatre and Dance celebrates creativity of the human spirit, offering a well-rounded education leading to a Bachelor of Arts degree in Theatre Arts with an emphasis in either theatre or dance. This study involves both academic disciplines and creative processes. These include practice and analysis of skills required in the performing arts; critical evaluation of literature, history, and theory of drama and dance; collaboration in production and public presentation of performance. The department also offers minors in theatre and dance as well as an interdisciplinary minor in musical theatre in cooperation with the Department of Music.

Theatre and dance are distinct but related areas of emphasis. While each has its own set of requirements, students in either emphasis share common courses. Through lectures, studio courses, labs, and productions, students work closely with faculty and staff

mentors. The theatre program offers coordinated courses in acting, design, technical production, directing, dramatic literature, and theatre history. Students within the theatre emphasis will have a well-rounded foundation but may focus their study on any of the above areas.

The dance program emphasizes modern dance and choreography, with additional training in jazz and ballet. In these areas, students have many opportunities for performance and production; majors have the option of a senior recital, directing project, design assignment, or a senior thesis. Majors must fulfill the University Core Curriculum and College of Arts and Sciences requirements for the Bachelor of Arts degree and the department requirements in their emphasis area, theatre or dance.

A degree in theatre arts provides preparation for many career options. Some students continue on to graduate school, perfecting skills in acting, dance, design, directing, or historical studies. Graduates in theatre and dance have successfully pursued careers in professional theatre and dance companies, film, television, arts administration, and teaching. In addition, many have applied their skills in careers outside of theatre—in medicine, law, management, marketing, development, and religion.

A strong liberal arts education is inherent in the study of theatre and dance. Students are encouraged to work with their advisors planning a program that includes courses within their focus area and courses in other departments with related disciplines. Programs that partner well with theatre and dance include: English, music, communication, studio art, psychology, political science, and marketing. Students may combine theatre with various education waiver programs. Courses in theatre and dance can provide students of any major with experience in collaborative work, critical thinking, management, and communication skills.

The theatre season usually includes at least four faculty-directed plays, three dance concerts, and student-directed plays and recitals. Participation in departmental productions is open to all members of the University community: students, faculty, and staff. Guest productions by professional dance and theatre companies occasionally form part of the season, and guest artists periodically direct, design, choreograph, or perform in shows with Santa Clara students.

The University also offers an interdisciplinary minor in musical theatre. Please see interdisciplinary minors for requirements.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and College of Arts and Sciences requirements for the Bachelor of Arts degree, students majoring in theatre arts must complete the following departmental requirements:

Emphasis in Theatre

- THTR 9, 20, 21, 30
- THTR 41, 42, 43
- Two courses from THTR 31, 32, 33
- DANC 46
- THTR 185
- One course from THTR 116, 117, 118

- Five approved upper-division theatre electives; two of which must be in alternate specializations: acting, design/technical, directing, history/literature, playwriting
- Four units of THTR 39/139

Emphasis in Dance

- THTR 9, 20, 30
- DANC 67
- DANC 40 or DANC 43
- DANC 46, 47, 48, 49
- One course from THTR 31, 32, 33
- DANC 143, 146, 147
- One course from DANC 140, 141, 142, 145, 148
- One course from DANC 162, 166, 189
- Three approved upper-division theatre and dance electives
- Four units of THTR 39/139

REQUIREMENTS FOR THE MINORS

Students must fulfill the following requirements for a minor in theatre or dance:

Minor in Theatre

- THTR 10, THTR 8 or THTR 15 or THTR 20, THTR 30 or THTR 31
- One approved theatre and dance elective
- Four approved theatre and dance courses
- THTR 39/139

Minor in Dance

- THTR 10
- DANC 46, DANC 47, DANC 48, DANC 49
- Four units of ballet or jazz
- DANC 143, DANC 146, DANC 147
- One theatre and dance elective
- THTR 39/139

LOWER-DIVISION COURSES: THEATRE

8. Acting for Nonmajors

Through standard theatre games, exercises, monologues, and scenes, students will explore, via Stanislavski's "method of physical action," basic principles of the acting craft. (4 units)

9. Defining the Performing Artist

Being in tune as a performing artist means being aware of the connection between body, mind, and spirit. Topics include discussion of professional résumés, head shots, auditions, and career choices. Also, the implications of being a performing artist, body image and awareness, self-esteem, lifestyle/health choices, nutrition and diet, and stress management strategies. (2 units)

10. Introduction to Theatre Arts

Creating a show: basic performance and production skills leading to theatrical presentation. (4 units)

11. and 12. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may address the performing arts, music, theatre, dance, and design as reflections and constructions of culture. Creativity and the use of space. (4 units)

14. Chicano Theatre

Study of performance of the "acto," Hispanic American Theatre's basic form of theatrical expression. Offered in alternate years. (4 units)

20. Acting I

Foundation of the acting curriculum; improvisation, theatre games, open scenes, and monologues used to explore Stanislavski's "method of physical action." *Priority given to theatre arts majors/minors.* (4 units)

21. Voice I

Study of vocal production and technique for the stage. Principles of the Alexander Technique and other sources are used to learn vocal production and mechanics for building and maintaining the voice. Required for majors in theatre and dance. *Priority given to theatre arts majors/minors.* (4 units)

24. Acting II

Builds on the skills acquired in Acting I. Application of the concepts of "objective, actions, and qualities of action" to scripted material. Rehearse and perform scenes from plays by American playwrights bringing foundation skills to physical life. *Prerequisite: THTR 20.* (4 units)

27. Children's Theatre Production

The development and production of traditional and bilingual theatre for children. Focus is on ethnic folk tales and social justice issues. Touring production. (2 quarters/2 units each quarter)

29. Rehearsal and Performance

Active participation in the preparation and performance of departmental productions as actors, assistants to the director, dancers, and choreographers. Individual design/technical assignments. May be repeated for a total of 8 units. *Prerequisite: Approval of director of production.* (2 units)

30. Introduction to Design

Explores the role of design as a part of the production process. Includes a study of the elements and principles of design as they apply to scenic, lighting, and costume design. Also included: design development and the role of each designer in the production. (4 units)

31. Introduction to Production

Overview of the organization, concepts, terminology, and skills involved in technical theatre. Hands-on work in the scene shop. (4 units)

32. Costume Construction

Introduction to making costumes: fabric/textile studies, sewing techniques, dyeing and ornamentation, and costume crafts. (4 units)

33. Stage Lighting

Principles and practice. Color, instrumentation, basic electricity, and electronics. Elementary design theory and practice. (4 units)

35. Technology and Theatre

An introduction to computer applications as an aid to design, problem solving, and management in theatre. (4 units)

36. Makeup for Stage

Basic principles of makeup for the stage. Youth, old age, and special problems. (2 units)

37. Graphics and Rendering for Theatre Design

Introduction to graphic representation. Drafting, mechanical perspective, freehand drawing, isometrics, white model development, painter's elevation, rendering, and portfolio presentation. Offered in alternate years. (4 units)

38. Scene Painting

Introduction into the styles, techniques, and application of scenic art as it relates to the theatre. This includes color theory, light and shadow, and the interpreting of a painter's elevation and/or scenic research for the stage. Projects include wood graining, stone, marble, and foliage. Offered in alternate years. (4 units)

39. Production Workshop

Training in development of technical skills for stage production. Directed work in scenery and costume construction, lighting, sound, and stage management. May be repeated for a total of 8 units. Not applicable to paid work hours or to laboratory hours connected with stagecraft courses. (2 units)

40. Costume Crafts and Fashion Accessories

This class will cover more advanced sewing and costume craft skills such as corset making, hat making, and jewelry making. Offered in alternate years. *Prerequisite: THTR 32 or by permission of instructors.* (4 units)

41. Theatre History I

First in a three-course sequence exploring the development of Western theatre as an art form and a complex social institution. Theatre History I begins in pre-history, considering various theories that try to account for the origin of theatre, and continues with a study of the texts and performance practices of ancient Greece, Republican and Imperial Rome, and Medieval Europe. (4 units)

42. Theatre History II

Second in a three-course sequence exploring the development of Western theatre as an art form and a complex social institution. Theatre History II begins with the transition from pre-modern to modern theatrical practice, and involves studying Western texts and performance practices of the 16th, 17th and 18th centuries. (4 units)

43. Theatre History III

Third in a three-course sequence exploring the development of Western theatre as an art form and a complex social institution. Theatre History III begins with Romantic movement and involves studying Western texts and performance practices of the 19th, 20th, and 21st centuries. (4 units)

44. Modern American Theatre History: Censorship, Arts Funding, and Theatre Unions

Relationship between the theatre arts and society. Through the study of significant cultural history as well as theatre literature, tackles important social justice issues involving censorship, arts funding, theatre unions, and the shaping of American values. (4 units)

65. Multicultural Theatre

Addressing social, ethnic, and gender issues from several groups outside the dominant culture through diverse types of theatre, including, but not limited to, Asian American, Hispanic, African American, gay, and lesbian theatre. (4 units)

66. People's Theatre

Understanding and appreciation of a form of theatre called People's Theatre, a type of theatre and a process of creating a play based on interviewing marginalized people to gain perspective on social justice issues that are of concern to them. Students will have a hands-on experience of creating a short people's theatre piece and having it performed as a reading in front of an audience. (4 units)

68. Special Topics: Playwrights' Workshop

Workshop focuses on the development of a script or performance piece centered on a particular chosen theme. May include research, interviews, improv, and script development. Offered in alternate years. (4 units)

80. Musical Theatre Production Workshop

Gives students the opportunity to perform in a musical theatre production workshop that covers the study of songs and scenes from a wide variety of musicals. The class presents an original musical review at the end of the quarter. Offered in alternate years. *Prerequisites for majors and minors: THTR 20, THTR 21 or MUSC 34, DANC 40 or 46.* (4 units)

UPPER-DIVISION COURSES: THEATRE

110. Medieval Theatre

Course considers the range of theatrical activity in Western Europe during the Medieval period (c. 500-1500 CE). Considers historical documents, play texts, and secondary sources in its aim to discover how Medieval theatrical performances both revealed and constructed the culture of the Middle Ages. (5 units)

111. English Drama I

Also listed as ENGL 113. For course description see ENGL 113. (5 units)

112. Topics in Theatre and Drama Prior to 1700

Course topics include: Medieval Drama, Commedia Dell'Arte, Elizabethan and Restoration Drama, Classic Drama East and West. *Also listed as ENGL 112.* (5 units)

113. Topics in Theatre and Drama After 1700

Course topics include: Neo-Classic Drama and 19th-Century American Theatre. *Also listed as ENGL 112.* (5 units)

116. Shakespeare's Tragedies

Also listed as ENGL 116. For course description see ENGL 116. (5 units)

117. Shakespeare's Comedies

Also listed as ENGL 117. For course description see ENGL 117. (5 units)

118. Shakespeare Studies

Also listed as ENGL 118. For course description see ENGL 118. (5 units)

120. Acting Styles I: Shakespeare

Techniques for performing the works of William Shakespeare and other Elizabethan playwrights. Learn scansion and perform sonnets, monologues, and scenes from plays. Offered in alternate years. *Prerequisite: THTR 24.* (5 units)

122. Acting Styles II: Acting for the Camera

Specific techniques of acting in commercials, television, industrials, and film. Perform scenes in front of the camera to achieve understanding of the differences and similarities of acting in this media and theatre. Offered in alternate years. *Prerequisite: THTR 24.* (5 units)

123. Acting Styles III: Musical Theatre

Study of the techniques of acting in this special genre including phrasing, interpretation of lyrics, and auditioning. Offered in alternate years. *Prerequisites: THTR 20, THTR 21 or MUSC 34, or permission of instructor.* (5 units)

124. Acting Styles IV: Advanced Acting for the Camera

Advanced study of acting for the camera with special attention to Modern American plays. For part of the class students will work in the television studio directed by communication majors utilizing a three-camera shoot. Offered in alternate years. *Prerequisite: THTR 122 or permission of instructor.* (5 units)

125. Special Topics

A scene study course that may include specific playwrights or styles—Chekhov, Ibsen, Greek, Absurdist, Brecht, Meisner, or other styles depending on departmental needs or instructor expertise. *Prerequisite: THTR 24 or permission of instructor.* (5 units)

127. Children's Theatre Production

For course description see THTR 27. (2 units)

129. Rehearsal and Performance

For course description see THTR 29. (2 units)

130. Technical Design

The design process: adapting scenic elevations to building scenery. Transformation of scene designs to carpenter drawings; standard building methods, stage machinery solutions, and budget-regulated design options. Offered in alternate years. (5 units)

131. Sound Design

Principles of sound in theatre production. Emphasis on practical applications and equipment use; digital and automation sound theories. Offered in alternate years. *Prerequisite: THTR 30 or permission of instructor.* (5 units)

132. Lighting Design

Application of lighting skills to production design. Offered in alternate years. *Prerequisite: THTR 33 or permission of instructor.* (5 units)

133. Scene Design

Application of graphic skills to scenic design. Styles, scene painting technique, set décor. Offered in alternate years. *Prerequisite: THTR 30 or permission of instructor.* (5 units)

134. Costume Design

Principles of costume design for the stage. Application of design elements to convey character and production concepts. Period research, style, and rendering techniques. Offered in alternate years. *Prerequisite: THTR 30 or permission of instructor.* (5 units)

136. Advanced Scene Painting

A study into the historical styles of Trompe L'Oeil and Grisaille and their application to scenic art for the theatre. This will include the scaling and transferring of images for

large scale projects. Projects include architectural reliefs, fabric/drapery, and ornamentation. Offered in alternate years. (5 units)

137. Pattern Drafting and Draping

Drafting and draping techniques for a basic bodice, skirt, sleeve, and collars, and techniques for developing variations. Emphasis on drafting period garments. Offered in alternate years. *Prerequisite: THTR 32 or permission of instructor.* (5 units)

138. Production Management

Designed to acquaint students with the complexities of managing productions from the audition process to final performance. Directing, lighting, scenic production, sound, cueing, budgets, and personnel management are aspects that will be touched upon in class. Offered in alternate years. (5 units)

139. Production Workshop

For course description see THTR 39. (2 units)

151. Fashion, Politics, and Issues of Gender

Historical exploration of fashion not merely as a matter of personal taste, but as a sight for examining the interconnections among power, politics, gender, and ethnicity. The course will consider the role of fashion in constructing gender and ethnic identities, social and political structures, and fomenting revolution. (5 units)

160. Literature and Performance

Adapting literature (poems, novels, short stories, diaries, etc.) for the stage, and writing complete scripts for performance and production. Theories of both narrative and dramatic structures. *Also listed as ENGL 194.* (5 units)

161. American Theatre from the Black Perspective

An exploration of the contributions Black artists have made to enrich the American theatre as playwrights, actors, designers, and directors. Offered in alternate years. *Also listed as ENGL 192.* (5 units)

164. Women in Theatre

Seminar designed to reflect on the various roles women have played in the modern American theatre. Offered in alternate years. (5 units)

165. History of American Musical Theatre

A cultural look at musical theatre as an American art form, which has its roots in vaudeville, burlesque, and minstrel shows. Offered in alternate years. (5 units)

167. Gender and Performance

Exploration of issues of gender and sexuality as they are performed in theatre, music, dance, and contemporary performance art. Offered in alternate years. (5 units)

168. Special Topics: Playwrights' Workshop

Workshop focuses on the development of a script or performance piece centered on a particular chosen theme. May include research, interviews, improv, and script development. Offered in alternate years. (5 units)

170. Playwriting

Critical analysis of dramatic structure for the playwright. Scenarios, character studies, writing of original plays. *Also listed as ENGL 193W.* (5 units)

171. Advanced Playwriting

Continuation of THTR 170. *Also listed as ENGL 193.* (5 units)

173. Screenwriting

Also listed as ENGL 173. For course description see ENGL 173. (5 units)

180. Musical Theatre Production Workshop

Gives students the opportunity to perform in a musical theatre production workshop that covers the study of songs and scenes from a wide variety of musicals. The class will have a musical review at the end of the quarter. Offered in alternate years. *Prerequisites for majors and minors: THTR 20, THTR 21 or MUSC 34, DANC 40 or 46.* (5 units)

181. Classical Tragedy

Also listed as CLAS 181 and ENGL 110. For course description see CLAS 181. (5 units)

182. Classical Comedy

Also listed as CLAS 182 and ENGL 111. For course description see CLAS 182. (5 units)

185. Dramaturgy

Play analysis in the context of theatrical genres and historic period cultures. *Also listed as ENGL 195.* (5 units)

186. Stage Directing

Basic course in the problems, techniques, and theory of directing plays for the live theatre. *Prerequisites: THTR 20 and THTR 185.* (5 units)

187. Seminar in Theatre and Dance Before 1700

Topics may include: Medieval Religious Drama and Performance, Shakespeare Seminar, and Antitheatricalism. Can be repeated for credit as topic varies. (5 units)

189. Seminar in Theatre and Dance After 1700

Topics may include: The Musical Theatre of Stephen Sondheim, Asian Drama, and the works of August Wilson. Can be repeated for credit as topic varies. (5 units)

190. New Playwrights' Festival

In this workshop course we will engage with the process of moving a play from "the page to the stage." Students will first engage with a series of generative and analytic dramaturgical exercises. Then, working with student actors and directors in a collaborative rehearsal period, students will interact with their play in motion, gaining information of further entry into the work. The class culminates in a festival of staged readings. *Prerequisites: THTR 170 and permission of instructor.* (5 units)

191. Peer Educator in Theatre

Students will assist instructors in theatre classes. *Prerequisite: Mandatory training workshop.* (1-2 units)

194. Senior Creative Project

Capstone project showcasing playwriting or performance art skills. *Prerequisites: Permission and approval of the head of the directing/playwriting program. Must have completed technical requirement and have stage-managed a student or main stage production.* (5 units)

195. Senior Project: Design/Technical

Students serve as designers for sets, costumes, lights, or sound, or as technical directors for a departmental production. *Prerequisite: Approval of design faculty.* (5 units)

196. Senior Project: Directing

Project in directing. A short play, fully staged. *Prerequisites: THTR 20, 30, 41, 42, 43, 185, 186. Successful completion of stage crew assignments that include: run crew for two departmental productions, and stage manager for a one-act play or departmental play. Permission of the head of the directing program.* (5 units)

197. Senior Thesis

A senior thesis in history/literature/dramaturgy. The thesis would be written for the advisor in consultation with other committee members. Upon completion of the thesis, an oral defense will take place before a selected committee. *Prerequisite: Faculty approval.* (5 units)

198. Practicum

Reserved for projects with recognized institutions outside the University. *Prerequisite: Written proposal must be approved by instructor and department chair one week prior to registration.* (1–5 units)

199. Independent Study/Directed Reading/Directed Research

Two areas of directed study: creative projects in directing, choreography, technical production, design, playwriting, administration, or directed reading and/or research. *Prerequisite: Written proposal must be approved by the instructor and department chair one week prior to registration.* (2–5 units)

LOWER-DIVISION COURSES: DANCE

4. The Physics of Dance

Explores the connection between the art of dance and the science of motion with both lecture/discussion sessions and movement laboratories. Topics to include: mass, force, equilibrium, acceleration, energy, momentum, torque, rotation, and angular momentum. Movement laboratory will combine personal experience of movement with scientific measurements and analysis, in other words: "dance it" — "measure it." This is a lab science course, not a dance technique course. *Also listed as PHYS 4.* (4 units)

29. Rehearsal and Performance

Active participation in the preparation and performance of departmental productions as actors, assistants to the director, dancers, and choreographers. Individual design/technical assignments. May be repeated for a total of 8 units. *Prerequisite: Approval of director of production.* (2 units)

38. Movement for Athletes

Focuses on flexibility, agility, body awareness, and strength building. Class exercises will draw from Pilate's core strengthening mat work, introductory ballet barre, and center work to enhance balance and coordination. (2 units)

40. Jazz Dance I

Introductory course in jazz dance with no previous training required. Introduces body isolation, rhythmic awareness, movement coordination, and jazz styles through performance of dance combinations. (2 units)

41. Jazz Dance II

Continuation of jazz fundamentals introduced in DANC 40 with emphasis on learning and retaining longer combinations. (2 units)

42. Jazz Dance III

Continued study of jazz dance at an intermediate level with emphasis on technique, flexibility, balance, control, muscle tone, and retaining long combinations in a variety of jazz styles. Students choreograph final projects. (4 units)

43. Ballet I

Introductory course in ballet with no previous experience necessary. Develops individual strength, flexibility, and coordination through classical ballet technique. Includes barre and floor combinations. (2 units)

44. Ballet II

Continuation of ballet fundamentals introduced in DANC 43 with emphasis on discipline, coordination, and developing practical performing skills in classical ballet technique. Includes barre and floor combinations. (2 units)

45. Ballet III

Continued study of ballet at intermediate level, encouraging technical and performing proficiency. Focus on correct alignment and developing artistic expression. Includes barre exercises and intermediate-level floor combinations. (4 units)

46. Modern Dance I

Introductory course in modern dance with no previous training required. Introduces the expressive potential of dance through modern dance technique. Emphasis on flexibility, strength, and alignment practiced through standing and floor exercises. Movement improvisation explores qualities of motion. (2 units)

47. Modern Dance II

Continuation of modern dance fundamentals introduced in DANC 46 with emphasis on technique, flexibility, coordination, and creativity. (2 units)

48. Modern Dance III

Continued study of modern dance at an intermediate level. Emphasis on release techniques, rhythmic precision, and spatial principles through extended combinations and movement improvisation. (4 units)

49. Dance Composition

Traditional approaches to compositional problems of form and design, time and rhythm, energy flow and force in dance as an art form. (4 units)

50. Tap I

Introductory course in tap dance with no previous training required. Develops better coordination, rhythm, and timing. Strengthens the feet and legs. Basic tap terminology and steps. (2 units)

51. Tap II

Continuation of tap fundamentals introduced in DANC 50. A series of regulated and controlled rhythmical movements of the body, accompanied by music, which develops a sense of rhythm and coordination. Learn tap steps and apply them to the art of performance. (2 units)

52. Afro-Haitian Dance

Introductory course in Afro-Haitian dance with no previous training required. Basic technique class that introduces the subtleties of the dance, proper body placement, and the rhythmic structure between the dance and the music. Offered in alternate years. (2 units)

54. Mexican Folklorico Dance

Introductory course in Mexican folklorico dance with no previous training required. Course introduces steps and moves from various regional forms of dance from Mexico including Azteca, Quebradita, Danzon, and Salsa Mexican style; plus a very structured form of exercise for footwork called "tecnica" drills to enable the dancer to pick up more intricate and challenging material. Offered in alternate years. (2 units)

55. Musical Theatre Dance Styles

Exploration of musical theatre dance styles. Based on jazz technique, it will consist of warm-ups, basic dance steps, and combinations from musical theatre. Offered in alternate years. (4 units)

56. Pilates Private Instruction

Pilates is the latest technology for conditioning the human body. Pilates is excellent for building a deep internal strength and an integrated, aligned body for anyone with an active lifestyle, as well as for injury prevention and recovery. One-on-one Pilates instruction using the Reformer. *Prerequisite: Permission of instructor.* (1 unit)

57. Children's Dance Production

The development and production of creative dances designed for children K-12 (lower or higher grades in alternate years). Focus on improvisation and sharing the art of dance through interactive performance. Touring production. (2 units)

58. Pilates Mat Class

Pilates mat classes, based on the pioneering work of Joseph Pilates, are designed to condition the body. Mat classes focus on alignment and breathing. Strengthens the core of the body while freeing-up the joints to

aid in flexibility, improving posture, and all around quality of life. *Prerequisite: Permission of instructor.* (2 units)

59. Teaching the Performing Arts

Immersion course in artistic process, practices, principles, pedagogies, and public policy. Covers fundamentals of teaching dance, theatre, music, and art to children in public and private settings with a focus on marginalized communities, and is important preparation for any student considering teaching at any point in his/her career. (4 units)

60. Kinesiology

Kinesiology is the study of the mechanics of human motion. Develops a thorough knowledge of human anatomy, specifically the skeletal and muscular systems, and explores the effects of gravity on the moving body. Class work will involve both text and laboratory based learning. (4 units)

61. Charisma

Charisma is a student directed, faculty mentored exploration of spirituality, as revealed through the performing arts. Students begin this process in retreat, dedicating time throughout fall quarter for reflection, discovery, and outreach. Charisma culminates in early winter quarter performances through the building of an intimate arts community experience. *Prerequisite: Auditions are held the preceding spring quarter.* (2 units)

62. African American Dance History

Exploration of African American dance's contribution to U.S. culture from slavery through the present. How minstrel stereotypes, jazz dance sources, black concert dance and hip-hop reflect racial and social realties in America. (4 units)

63. Pilates Mat: Instructor Training I

Teacher training course to develop teachers in the Pilates method of mat exercises. Coupled with Pilates Mat: Instructor Training II, the student will then be prepared to test out for certification in mat training. *Prerequisite: Pilates Mat Class or permission of instructor.* (4 units)

64. Pilates Mat: Instructor Training II

Continuation of Pilates Mat: Instructor Training I. Coupled with this course, the student will then be prepared to test out for certification in mat training. *Prerequisite: Pilates Mat Class or permission of instructor.* (2 units)

65. Intermediate/Advanced Modern Dance and Video

Includes extensive integration of video technologies and dance. The mixed-level technique class focuses on alignment, flexibility, strength, complex rhythms, and music interpretation with some improvisation and composition opportunities. Work with digital cameras, learn the basics of lighting, shooting techniques, storyboarding, projections, streaming video to the Web, and how to best document dance on video. (2–4 units)

66. Women in Dance History

Introduction to significant European and American women dance artists from the 1830s to the present with a focus on their achievements as dancers, choreographers, critics, and scholars within their social context. Views dance through feminist theoretical perspectives to address issues of power, agency, and personal expression in ballet, modern, jazz, and ethnic dance forms. (4 units)

67. Dance History

Survey of Western concert dance that explores the Italian and French origins of ballet through the 20th century emergence of modern and jazz dance, and culminates with the new directions of postmodern dance late in that century. Investigates the key contributing artists, significant developments, and overall growth of dance as a performing art integrated into the changing society to which it belongs. (4 units)

68. Cultures on the Move: Theatre and Dance as Dialogue of Transition

Explores the historical circumstances of migration to the United States by populations and cultures from West Africa and China as well as the Cherokee nation within the United States. Focuses on how performance traditions, especially dance, functioned to process the inevitable conflicts, struggles, and ultimate transformations into blended cultures. Considers the legacy and current vitality of these cultural migrations in the present. (4 units)

UPPER-DIVISION COURSES: DANCE

129. Rehearsal and Performance

For course description, see DANC 29. (2 units)

138. Movement for Athletes

Focuses on flexibility, agility, body awareness, and strength building. Class exercises will draw from Pilates core strengthening mat work, introductory ballet barre, and center work to enhance balance and coordination. (2 units)

140. Advanced Ballet I

Advanced level study of classical ballet with focus on American and European styles. Includes ballet barre exercises, center adagio, and allegro combinations at intermediate/advanced level. (5 units)

141. Advanced Ballet II

Continuation of DANC 140. (5 units)

142. Advanced Jazz Dance I

Builds from an assumed intermediate level of jazz dance technique. Emphasis on personal style and performance techniques in advanced jazz dance combinations. (5 units)

143. Choreography

Emphasis on the creative process, dynamics, phrasing, and thematic development through choreographing and performing an original group dance. Exploration of aesthetic and stylistic approaches to choreography. *Prerequisite: DANC 49 or equivalent.* (5 units)

145. Advanced Jazz Dance II

Continuation of DANC 142. Emphasis on learning longer warm-ups, combinations, and adagio work. Opportunity to create your own choreography, and learn technique of teaching fellow students. (5 units)

146. Advanced Modern Dance I

Intermediate/advanced level study of modern dance technique. Emphasis on release principles, breath control, phrasing, clarity of line, and movement qualities. Improvisation and extended combinations develop performance commitment. (5 units)

147. Advanced Modern Dance II

Continuation of DANC 146. Emphasis, through improvisation and combinations, on the temporal component of dance: rhythm, tempo, time signatures, and polyrhythms. (5 units)

148. Advanced Modern Dance III

Continuation of DANC 146 and DANC 147. Focus on modern dance styles: lyrical, classical, eclectic, and pedestrian. Emphasis on developing a clear, personal performance style and movement analysis skills. (5 units)

149. Dance Outreach

A performance of original creative student work both on and off campus as a representative of the department. Certain outreach venues will be coordinated with the Arrupe Center. *Prerequisite: Permission of instructor.* (2–5 units)

155. Musical Theatre Dance Styles

Exploration of musical theatre dance styles. Based on jazz technique, it will consist of warm-ups, basic dance steps, and combinations from musical theatre. Offered in alternate years. (5 units)

156. Pilates Private Instruction

Pilates is the latest technology for conditioning the human body. Pilates is excellent for building a deep internal strength and an integrated, aligned body for anyone with an active lifestyle, as well as for injury prevention and recovery. One-on-one Pilates instruction using the Reformer. *Prerequisite: Permission of instructor.* (1 unit)

157. Children's Dance Production

The development and production of creative dances designed for children K-12 (lower or higher grades in alternate years). Focus on improvisation and sharing the art of dance through interactive performance. Touring production. (2 units)

158. Pilates Mat Class

Pilates mat classes, based on the pioneering work of Joseph Pilates, are designed to condition the body. Mat classes focus on alignment and breathing. Strengthens the core of the body while freeing-up the joints to aid in flexibility, improving posture, and all around quality of life. *Prerequisite: Permission of instructor.* (2 units)

159. Teaching the Performing Arts

Immersion course in artistic process, practices, principles, pedagogies, and public policy. Covers fundamentals of teaching dance, theatre, music, and art to children in public and private settings with a focus on marginalized communities, and is important preparation for any student considering teaching at any point in his/her career. (5 units)

161. Charisma

Charisma is a student directed, faculty mentored exploration of spirituality, as revealed through the performing arts. Students begin this process in retreat, dedicating time throughout fall quarter for reflection, discovery, and outreach. Charisma culminates in early winter quarter performances through the building of an intimate arts community experience. *Prerequisite: Auditions are held the preceding spring quarter.* (2 units)

162. African American Dance History

Exploration of African American dance's contribution to U.S. culture from slavery through the present. How minstrel stereotypes, jazz dance sources, black concert dance, and hip-hop reflect racial and social realities in America. (5 units)

165. Intermediate/Advanced Modern Dance and Video

Includes extensive integration of video technologies and dance. The mixed-level technique class focuses on alignment, flexibility, strength, complex rhythms, and music interpretation with some improvisation and composition opportunities. Work with digital cameras, learn the basics of lighting, shooting techniques, storyboarding, projections, streaming video to the Web, and how to best document dance on video. (2–5 units)

166. Women in Dance History

Introduction to significant European and American women dance artists from the 1830s to the present with a focus on their achievements as dancers, choreographers, critics, and scholars within their social context. Views dance through feminist theoretical perspectives to address issues of power, agency, and personal expression in ballet, modern, jazz, and ethnic dance forms. (5 units)

189. Social Justice and the Arts

Explores the dynamics of theatre and dance in the context of social justice in local, national, and international settings. The course will host visiting guest artists, create network-

ing opportunities within the nonprofit sector, and will have an active on-campus presence. Outreach venues will be coordinated with the Arrupe Center. This is a research and discovery opportunity. (5 units)

191. Peer Educator in Dance

Students will assist instructors in dance classes. *Prerequisite: Mandatory training workshop.* (1–2 units)

193. Senior Project: Dance

A recital for theatre majors, with dance emphasis, showcasing their performance abilities. *Prerequisite: Approval of dance faculty.* (5 units)

198. Dance Practicum

Reserved for projects/internships with recognized institutions outside of the University. *Prerequisite: Written proposal must be approved by the instructor and the department chair one week prior to registration.* (1–5 units)

199. Independent Study

Various areas of directed study: creative projects in directing, choreography, technical production, design, playwriting, administration, teaching assistants, focused participation in special project, or directed reading and/or research. *Prerequisite: Written proposal must be approved by the instructor and department chair one week prior to registration.* (2–5 units)

WOMEN'S AND GENDER STUDIES PROGRAM

Associate Professors: Laura Ellingson, Eileen Elrod, Linda Garber *(Program Director)*

The Women's and Gender Studies Program brings together scholars and scholarship on women and gender, areas that have come to occupy an increasingly important place in a number of disciplines in the last quarter century. Areas of inquiry include the participation of women in social and cultural production; the construction of gender and its role as a constitutive element of social, political, economic, and legal structures; feminist theory, and the development of ideas about femininities, masculinities, and sexualities. Gender is examined as it intersects with class, sexuality, ethnicity, disability, age, and nationality. The program organizes several public events throughout the year focused on gender issues, including lectures, symposia, films, and informal gatherings. Many of these programs are produced in collaboration with other academic departments, student groups, and the University's centers of distinction.

The Women's and Gender Studies Program provides an integrated, interdisciplinary approach to understanding the social and cultural constructions of gender that shape the experiences of women and men in society. The curriculum offers a solid foundation in women's and gender studies, facilitating graduate study and careers involving gender justice concerns and preparing students for leadership roles in diverse workplaces and communities. Women's and Gender Studies offers a minor and a companion major; a student must declare a primary major in another discipline (e.g., history, biology, or English) and a second companion major in women's and gender studies.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and primary major requirements, students with a companion major in women's and gender studies must complete the following requirements:

- WGST 101 or ENGL 125 (advised in the junior year)
- COMM 111G (advised in the junior year)

- WGST 190 (senior year)
- WGST 197 (senior year)
- One course from each of the following breadth areas:

  Race/Ethnicity in the U.S.: ENGL 69, ENGL 158G, ETHN 141, ETHN 154, ETHN 156, SOCI 153

  Transnational/Global: ANTH 88, ECON 135, ENGL 153, FREN 113, HIST 143, HIST 150, POLI 127 (women and law topic only), SOCI 135, WGST 11,12

  Sexuality: BIOL 28, CLAS 141, ENGL 67, ENGL 122 (with sexuality topic only), ENGL 153, ENGL 156, HIST 133, HIST 177, PHIL 131D, THTR 167

  Religious Studies: RSOC 41, RSOC 168, RSOC 170, SCTR 26, SCTR 165R, TESP 79, TESP 131, TESP 139R, TESP 175

  Elective: ANTH 90, ANTH 157, ARTH 188, CLAS 185, CLAS 186, CLAS 187, COMM 101A, COMM 108A, DANC 66, DANC 166, ENGL 68, ENGL 125, ENGL 132G, ENGL 135G, ENGL 152, ENGL 168, HIST 84, HIST 113, HIST 119, HIST 136, HIST 181, HIST 182, FREN 174, FREN 182, FREN 183, FREN 184, GERM 183, ITAL 182, PHIL 4A, PHIL 115, POLI 154, SOCI 152, SOCI 157, THTR 151, THTR 167, WGST 50, WGST 76, WGST 198, WGST 199
- Three courses in an emphasis area using one of three options: student's primary major, thematic emphasis (e.g., ethnic studies, sexuality studies, performance/visual culture studies), or a traditional discipline outside student's primary major
- At least eight of the 12 courses must be upper division
- Courses taken to satisfy the University Core Curriculum or primary major requirements may also count toward the major
- Attend two events per year sponsored or co-sponsored by the Women's and Gender Studies Program and prepare a one- to two-page reflective analysis of each event due in the program office within a week of the event

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in women's and gender studies:

- WGST 101 or ENGL 125 (advised in the junior year)
- WGST 190 (senior year)
- One course from at least three breadth areas plus any two additional courses (approved for the WGST major)
- At least four of the seven courses must be upper-division courses
- Courses taken to satisfy the University Core Curriculum or primary major requirements may also count toward the minor
- Attend two events per year sponsored or co-sponsored by the Women's and Gender Studies Program and prepare a one- to two-page reflective analysis of each event, due in the program office within a week of the event

LOWER-DIVISION COURSES: WOMEN'S AND GENDER STUDIES (WGST)

WGST 11A./12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. Courses may include civilization and the city; explorations, migrations, and nations; empires and rights; slavery and unfreedom; and other topics. Considers how women's lives from diverse global regions are shaped by the political, economic, and social structures that surround them; areas of inquiry include perspectives on representation, globalization, and displacement, citizenship and rights, bodies and sexuality, and environmental justice. The second quarter of this two-course sequence includes an experiential learning component. (4 units each quarter)

WGST 50. Introduction to Women's and Gender Studies

Examines gender in the lives of women and men, using an interdisciplinary approach to analyze the effects of societal institutions and processes. Particular attention is paid to the development and dynamics of gender inequality; intersections of gender, race, class, and sexuality; and the social construction of gender. (4 units)

WGST 76. Violence Against Women

Interdisciplinary study of U.S.-based women in the context of the institutionalization of violence and its impact across civic life. Areas of violence research such as campus, domestic, sexual assault, harassment, and stalking will be addressed in the context of the intersections of race, class, gender, and sexuality. (4 units)

UPPER-DIVISION COURSES: WOMEN'S AND GENDER STUDIES

WGST 101. Feminist Theory

Examines historical and contemporary feminist theories with the goal of understanding the multiplicity of feminist frameworks for thinking about sex, gender, and oppression. (5 units)

WGST 190. Senior Seminar

Seminar focused on critical questions within the interdisciplinary field of women's and gender studies. Course will consider connections between the field and feminist politics/activism in the larger community. *Restricted to seniors with a major or minor in women's and gender studies.* (5 units)

WGST 197. Capstone Project

Seminar led by the WGST Program director provides an opportunity for WGST majors writing their capstone projects to discuss their work in progress. Course required for (and restricted to) WGST majors working on their capstone projects. May be repeated for credit. (1–5 units)

WGST 198. Internship

Directed internship in local organizations addressing gender and/or sexuality issues. Open to qualified WGST majors and minors with permission of instructor. (1–5 units)

WGST 199. Directed Reading/ Research

Independent projects undertaken by upper-division students with a faculty sponsor. To receive credit, the student must submit a formal written proposal and have it approved by the sponsoring faculty member and the program director. The proposal must be submitted before the end of the previous quarter and must meet University requirements for independent study credit. (1–5 units)

ANTHROPOLOGY COURSES

ANTH 88. Women and Gender in the Middle East
ANTH 90. Cross Cultural Study of Women
ANTH 157. Family and Kinship

ART AND ART HISTORY COURSES

ARTH 188. Women in the Visual Arts

BIOLOGY COURSES

BIOL 28. Human Sexuality

CLASSICS COURSES

CLAS 141. Love and Relationships in Classical Antiquity
CLAS 185. Women in Ancient Greece
CLAS 186. Women in Ancient Rome
CLAS 187. Family in Antiquity

COMMUNICATION COURSES

COMM 101A. Vocation and Gender
COMM 108A. Communication and Gender
COMM 111G. Feminist Research Methods

DANCE COURSES

DANC 66. Women in Dance History
DANC 166. Women in Dance History

ECONOMICS COURSES

ECON 135. Gender Issues in the Developing World

ENGLISH COURSES

ENGL 67. U.S. Gay and Lesbian Literature
ENGL 68. Literature and Women
ENGL 69. Literature by Women Writers of Color
ENGL 122. Film, Gender, and Sexuality
ENGL 125. Feminist Literary Theory and Criticism
ENGL 132G. Studies in 19th-Century American Literature
ENGL 135G. Women and Gender in U.S. Fiction
ENGL 152. Women, Literature, and Theory
ENGL 153. Global Gay and Lesbian Cultures
ENGL 156. Gay and Lesbian Cultural Studies
ENGL 158G. Native American Women Writers
ENGL 168. Women and Literature

ETHNIC STUDIES COURSES

ETHN 141. Asian American Women
ETHN 154. Women of Color in the United States
ETHN 156. Race, Gender, and Environmental Justice

HISTORY COURSES

HIST 84. Women in American Society
HIST 113. Family in Antiquity
HIST 119. Sex, Family and Crime in Mediterranean Europe, 1300-1800
HIST 133. History of Sexuality
HIST 136. Gender, Race, and Class in 20th-Century Europe
HIST 143. Women in Political Revolutions
HIST 150. Women in East Asia
HIST 177. Gays and Lesbians in US History
HIST 181. American Women Since 1900
HIST 182. Sex and Family in U.S. History

MODERN LANGUAGES AND LITERATURES CLASSES

FREN 113. Francophone Cultures and Civilization: Black African Women Writers
FREN 174. French Novels and Films: Culture, Gender, and Social Classes
FREN 182. Women in French Literature: Authors and Characters
FREN 183. 20th-Century French Women Writers
FREN 184. 20th-Century French Women Writers in Translation
GERM 182. Women in German Literature: Authors and Characters
ITAL 182. 20th-Century Italian Women Writers

PHILOSOPHY COURSES

PHIL 4A. Ethics and Gender
PHIL 115. Feminism and Ethics
PHIL 131D. Love and Relationships in Classic Antiquity

POLITICAL SCIENCE COURSES

POLI 127. Global Perspectives: Women and Law
POLI 154. Women and Politics

RELIGIOUS STUDIES COURSES

SCTR 26. Gender in Early Christianity
SCTR 165R. Gender and Sexuality in Biblical Interpretation
TESP 79. Women in Christian Tradition
TESP 131. Feminist Theologies
TESP 139R. Catholic Theology and Human Sexuality
TESP 175. Women's Theologies from the Margins
RSOC 41. Women's Spiritualities
RSOC 168. Gender and Judaism
RSOC 170. Religion, Gender and Globalization

SOCIOLOGY COURSES

SOCI 135. Gender and Social Change in Latin America
SOCI 152. Women and Men in the Workplace
SOCI 153. Race, Class, and Gender in the U.S.
SOCI 157. Sociology of Family

THEATRE COURSES

THTR 151. Fashion, Politics, and Issues of Gender
THTR 167. Gender and Performance

4

Leavey School of Business

Acting Dean: Andrew Starbird
Assistant Dean, Undergraduate Business Programs: Jo-Anne Shibles
Assistant Dean, Graduate Business Programs: Elizabeth Ford

The Leavey School of Business offers professional business education within the larger context of academic excellence in the Jesuit educational tradition. The school provides undergraduate students with both the technical skills necessary for success in business and the ethical, global, and humanistic perspectives that are hallmarks of a liberal arts education. The undergraduate program strives for a mix of theory and practice and emphasizes the development of leadership skills.

UNDERGRADUATE DEGREES

The Leavey School of Business confers the degree of Bachelor of Science in Commerce with majors in accounting, accounting and information systems, economics, finance, management, marketing, and operations and management information systems. A general business minor is also available to nonbusiness students, on a space available basis, through an application process. The school also offers a minor in management information systems and interdisciplinary minors in international business and retail studies.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN COMMERCE

To qualify for the degree of Bachelor of Science in Commerce, students must complete a minimum of 175 quarter-units of credit (of which at least 60 must be in upper-division courses) and satisfy the requirements of the University Core Curriculum, the Leavey School of Business curriculum, and the departmental major.

University Core Curriculum

Critical Thinking and Writing

- Critical Thinking and Writing 1 and 2 from list of approved courses

Cultures and Ideas

- Cultures and Ideas 1 and 2 from list of approved courses
- Cultures and Ideas 3 with MGMT 80

Second Language

Native English-speaking students fulfill this requirement in one of three ways:

- Successful completion of the second course of the first-year, college-level sequence in a classical or modern foreign language
- Demonstration of an equivalent level of proficiency by passing a language proficiency examination supervised by the departments of Classics or Modern Languages and Literatures
- Obtaining a minimum score of 4 on the Advanced Placement Examination in a classical or modern foreign language
- International Baccalaureate and International A level exams

Students for whom English is not their native language may satisfy this requirement by submitting a petition to the chair of the Department of Modern Languages and Literatures and the chair of the University Core Curriculum Committee with professionally recognized documentation of proficiency in a language other than English. Such documentation includes but is not limited to a TOEFL examination score of 213 computerized or 550 paper and pencil examination.

Mathematics

Two mathematics courses:

- MATH 30 and 31 or MATH 11 and 12

Religion, Theology, and Culture

- Religion, Theology, and Culture 1 from list of approved courses
- Religion, Theology, and Culture 2 from list of approved courses
- Religion, Theology, and Culture 3 from list of approved courses

Ethics

- One business ethics course with MGMT 6 or PHIL 6

Civic Engagement

- MGMT 162 and MGMT 6 or PHIL 6

Diversity

- One course from list of approved courses

Arts

- One course from list of approved courses

Social Science

- ECON 1

Natural Science (with lab)

- One course from list of approved courses

Science, Technology and Society

- OMIS 34

Experiential Learning for Social Justice

- One course from list of approved courses

Advanced Writing

- ENGL 179 or ENGL 183

Pathways

- Four courses or 16 units from list of approved courses in one Pathway of the student's choice.

Leavey School of Business Core Curriculum: Lower Division

Introduction to Business

Two courses:

- BUSN 70 (to be completed during the freshman year)
- OMIS 17

Leadership Competency

Two 2-unit courses (four units of credit):

- BUSN 71 (to be taken in the winter quarter of the freshman year)
- BUSN 72 (to be taken in the spring quarter of the freshman year)

Note: Transfer students entering with 44 units or more must complete the leadership competency requirement with MGMT 174.

Economics

Three courses:

- ECON 1, 2, and 3

Accounting

Two courses:

- ACTG 11 and 12

Students should take ACTG 11 in the fall or winter quarter of their sophomore year and ACTG 12 in the subsequent winter or spring quarter.

Data Analysis

Two courses:

- OMIS 40 and 41

Information Systems

- OMIS 34

Leavey School of Business Core Curriculum: Upper Division

Common Core of Knowledge

Four courses:

- FNCE 121
- MGMT 160
- MKTG 181
- OMIS 108

Capstone Course

One course (to be taken during the senior year):

- MGMT 162 (must be completed with a grade of "C" or better)

MINORS IN THE LEAVEY SCHOOL OF BUSINESS

Minor in General Business

The Leavey School of Business offers a minor in general business open to nonbusiness students through an application process. Students with a minor in general business must complete the following requirements:

Mathematics and Statistics

Two courses in mathematics:

- MATH 30 and 31 or MATH 11 and 12

One course in statistics:

- OMIS 40, MATH 8, PSYC 40, or AMTH 108

General Business

One course:

- BUSN 70 (taken as a freshman or sophomore) or BUSN 170 (taken as a junior or senior)

Management

Two courses:

- MGMT 80 and 160

Economics

Three courses:

- ECON 1, 2, and 3

Accounting

Two courses:

- ACTG 11 and 12

Finance

One course:

- FNCE 121

Marketing

One course:

- MKTG 181

Departmental Minors

The Department of Operations and Management Information Systems offers a minor in management information systems, and the Department of Economics offers a minor in economics through the College of Arts and Sciences. Descriptions of these two minors and associated requirements can be found in the respective department sections of this chapter.

Interdisciplinary Minors

The Leavey School of Business administers two interdisciplinary minors open to business students and nonbusiness students: international business and retail studies. Descriptions of these two minors and associated requirements can be found in Chapter 6, Interdisciplinary Minors and Other Programs of Study.

GENERAL BUSINESS COURSES

70. Contemporary Business Issues

An introduction to the nature, forms, and objectives of the contemporary business firm and its relation to the environment in which it operates. (4 units)

71. Foundations of Leadership

Presents various theories, concepts, and models of leadership through a series of speakers, directed readings, and reflective writing assignments. *Prerequisite: Freshman business student.* (2 units)

72. Business Leadership Skills

Designed to continue learning from BUSN 71 by introducing and teaching various leadership skills. Course integrates group discussion, selected readings, experiential learning, and reflective engagement experiences. *Prerequisites: BUSN 71 and freshman business student.* (2 units)

144. Entrepreneurship – Bringing New Ideas to Market

The practice of business innovation and entrepreneurship with an emphasis on how communicate ideas, develop products, build organizations, and create lasting businesses. (5 units)

145. Entrepreneurship Practicum

An opportunity for select students to apply their entrepreneurial skills in emerging companies. *Prerequisite: BUSN 144.* (2–5 units)

170. Contemporary Business for Nonmajors

This course is specifically designed for upper-division (junior and senior), nonbusiness majors who are interested in learning about business firms and their relation to both the global and local environment in which they operate. Course will use a business simulation as a key learning method, in addition to lectures and small group discussion. This course is not open to students who have completed BUSN 70. *Prerequisite: Nonbusiness majors, junior or senior standing.* (5 units)

173. Leadership Experience

A seminar for students reflecting on their experience as a leader. Seminar includes selected readings, reflective engagement activity, personal leadership assessment, and writing assignments. Students who complete this class in addition to BUSN 71 and BUSN 72 or MGMT 174 will receive a Leadership Competency Certificate. *Prerequisites: BUSN 72 or MGMT 174, and a business major with junior or senior standing.* (2 units)

194. Civil Society Colloquium

A colloquium that gives outstanding students the opportunity to interact with each other and with faculty in serious intellectual enterprise. From assigned readings, the class will engage in high-level discussions of policy and other civic issues. (2 units)

196. Leadership Practicum

Opportunity for business students to obtain advanced experience leading, facilitating, directing, evaluating, and advising within a Leavey School of Business schoolwide or interdisciplinary project, class, or initiative. Generally includes selected readings, reflective engagement activity, personal leadership assessment, and writing assignments. *Requires approval of the assistant dean.* (1–5 units)

198. Internship/Practicum

Opportunity for upper-division students—typically involved with school-wide or interdisciplinary programs, projects, or initiatives—to work and study in or with profit and nonprofit organizations. Generally includes selected readings, a reflective engagement activity, and a written report. *Requires approval of the assistant dean or dean. May be included as fulfilling a requirement for a major only with permission of that department chair.* (1–5 units)

CENTERS, INSTITUTES, AND SPECIAL PROGRAMS

Accelerated Cooperative Education

The Accelerated Cooperative Education (ACE) program offers a unique, challenging, and rewarding experience to business students. Participants receive a program of workshops designed to build, strengthen, and enhance their leadership skills, introductions to ACE business partner companies for a paid summer internship, mentoring by senior executives, and fast-track admission to the Santa Clara MBA program. Students are selected into this program through an application process.

Dean's Leadership Program

The Dean's Leadership Program is an engaging experience for high-achieving first-year business students interested in exploring and developing their leadership skills. Business Dean's Scholars are invited to join the Dean's Leadership Program upon admittance to the University. This one-year program provides a high-impact experience, which guides students through their first year at Santa Clara University in order to prepare them to become leaders during their university experience and beyond.

Global Women's Leadership Program

The Global Women's Leadership Network (GWLN) is dedicated to developing the leadership capacity of women who dare to transform the future of their organizations, communities, and the world, and provides volunteer and internship opportunities for Leavey School

of Business undergraduate and graduate students. Established in 2004, GWLN provides a variety of programs to accomplish this objective. Programs range from an eight-day residential leadership intensive (Women Leaders for the World) to quarterly and monthly events, and includes undergraduate global fellowships, SCU alumni trips, and an International Outreach venture. GWLN is sponsored by the Leavey School of Business and many generous individual contributors.

Leavey Scholars Program

The Leavey Scholars Program offers special opportunities for undergraduate business students who have established a record of excellence in their Santa Clara studies. Leavey Scholars are invited to enroll in honors sections of selected business courses that are especially rigorous and academically challenging. Successful completion of the program warrants the designation "Leavey Scholar" on the student's transcript.

Center for Innovation and Entrepreneurship

The Center for Innovation and Entrepreneurship (CIE) provides networking, educational, and advisory services for members of the Santa Clara University community. The CIE coordinates the Undergraduate Entrepreneurship Program, which offers students the opportunity to develop their knowledge, skills, and experience in entrepreneurship through curricular and extracurricular activities. Study abroad options allow students to apply their entrepreneurial knowledge during the summer by helping disadvantaged micro entrepreneurs in the townships of South Africa. Da Vinci Residential Learning Community (RLC) is home to the Santa Clara Entrepreneur Organization (SCEO), our student club that organizes venture capital competitions, entrepreneur speaker events, mentoring programs, and networking mixers. The annual Student Entrepreneur of the Year Award is given at the end of the year and recognizes the student who has made the greatest contribution to the entrepreneurship program. To learn more or to enroll in the Undergraduate Entrepreneurship Program, please visit the Center for Innovation and Entrepreneurship in Lucas Hall Suite 111 or e-mail Linda Bookin at lbookin@scu.edu or call 408-554-5757.

Civil Society Institute

The Civil Society Institute is dedicated to educating students in the classic themes of political economy and their relevance to contemporary policy issues. In addition to a colloquium with undergraduate students, the Institute also hosts public lectures and conferences to create a forum for the Silicon Valley community to explore ideas and policy issues related to classical liberal thought, and publishes occasional policy studies. The Institute addresses the enduring questions of social philosophy: What values and public policies promote and sustain a humane, tolerant, diverse, and prosperous society?

Food and Agribusiness Institute

The Food and Agribusiness Institute (FAI) offers undergraduate and graduate courses on topics related to the food industry. At the undergraduate level, the FAI has taken the lead in facilitating a Core Curriculum pathway on Food, Hunger, and the Environment. At the graduate level, the FAI sponsors a concentration in food and agribusiness for students pursuing the MBA degree as well as opportunities for students to enhance their educational experience through internships, field trips, and a mentor program. The FAI also sponsors food industry research, conferences, and programs for the campus and food and agribusiness community.

Retail Management Institute

Under the direction of the Retail Management Institute, the Retail Studies Program provides students with a strong business background in the use of consumer information and information technology as well as an opportunity to explore the retail field in depth through both an internship and senior seminars. Students emerge from the program with the qualifications to enter the retail industry in fields such as buying and planning, e-commerce, Internet marketing, store management, global sourcing, and information technology. The Institute also sponsors pre-placement events for participants in the Retail Studies Program.

DEPARTMENT OF ACCOUNTING

Professor: Paul L. Locatelli, S.J.
Associate Professors: Michael Calegari, Michael J. Eames, Yongtae Kim, Suzanne M. Luttman, Jane A. Ou, Susan Parker *(Department Chair),* James F. Sepe, Neal L. Ushman
Assistant Professors: Haidan Li, Siqi Li

The Department of Accounting strives to provide high-quality accounting instruction, conduct research that contributes to the understanding of accounting issues, and provide superior service to students and alumni, the profession, the University, and the business community. In addition to the major in accounting, the Accounting and Operations and Management Information Systems departments offer a joint major in accounting and information systems.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling University Core Curriculum and Leavey School of Business requirements for the Bachelor of Science in Commerce, students majoring in accounting or accounting and information systems must complete the following departmental requirements:

Major in Accounting

- ACTG 20, 130, 131, 132, 134, 135, 136, and 138
- Accounting majors may use ACTG 134 to satisfy the information systems requirement in the Leavey School of Business curriculum.

Major in Accounting and Information Systems

- ACTG 20, 130, 131, 132, 135, 136, and 138
- OMIS 30 or OMIS 31
- OMIS 105, 106, and 150
- One course from OMIS 111, 113, 135

Accounting and information systems majors may use either OMIS 30 or OMIS 31 to satisfy the information systems requirement in the Leavey School of Business curriculum.

LOWER-DIVISION COURSES

5. Personal Financial Planning

Overview of the tools and information necessary for personal business decision making. Includes analysis of financial services, credit and borrowing, taxes, compensation planning, consumer purchases, housing decisions, the time value of money, savings, and investments. (4 units)

11. Introduction to Financial Accounting

Overview of the role of financial information in economic decision making. Includes topics such as the dissemination of accounting information and its impact on capital markets, and the analysis of corporate annual reports. Coverage of financial statements and their use in determining profitability and the financial condition of a business entity. *Prerequisites: Sophomore standing and BUSN 70 or BUSN 170. Seniors who have not completed BUSN 70 may take this class with department permission on a space-available basis.* (4 units)

12. Introduction to Managerial Accounting

Introduction to the role of financial information in the decision making of business managers. The objective is to investigate the use of business data in typical managerial functions such as planning, control, and making operational decisions. *Prerequisite: ACTG 11.* (4 units)

20. Recording Financial Transactions

Insight into the basic principles and mechanics behind the preparation of financial statements. Focus is on the accounting model, accrual versus cash accounting, and the accounting processing cycle. *Prerequisite: ACTG 11. Course may not be taken before spring quarter of the sophomore year.* (2 units)

UPPER-DIVISION COURSES

130. Intermediate Financial Accounting I

An in-depth study of the concepts underlying external financial reporting, along with expanded coverage of the basic financial statements. Detailed analysis of the measurement and reporting of current assets, operational assets, and investments, to include the treatment of related revenues and expenses. Significant attention is given to income statement presentation and revenue recognition. *Prerequisites: ACTG 11 and ACTG 20 and junior or senior standing. (ACTG 20 may be taken concurrently if necessary.)* (5 units)

131. Intermediate Financial Accounting II

Intensive analysis of generally accepted accounting principles as applied to accounting for liabilities, stockholders' equity, and the statement of cash flows. Accounting for income taxes, pensions, leases, and the reporting of corporate earnings per share. *Prerequisite: ACTG 130.* (5 units)

132. Advanced Financial Accounting

The main subject is accounting for business combinations, and the consolidation of financial statements of a parent company and its subsidiaries. A broad spectrum of financial reporting issues in the context of consolidated financial statements is examined. The course also covers partnership accounting and other advanced financial accounting topics. *Prerequisite: ACTG 131.* (5 units)

134. Accounting Information Systems

Introduction to procedures by which accounting data is captured, processed, and communicated in computerized information systems. The course describes the ways that accounting information systems are designed, used and maintained by accounting

professionals with an emphasis on the internal controls over such systems. *Prerequisites: ACTG 11 and ACTG 12 and junior or senior standing.* (5 units)

135. Auditing

Introduction to the basic concepts of auditing. Discussion of applicable regulation, the audit risk model, and client risk assessment. Focus is on an overview of the audit process. Auditors' professional and ethical responsibilities, sampling and historical cases will also be discussed. *Prerequisite: ACTG 131. (ACTG 131 may be taken concurrently.)* (5 units)

136. Cost Accounting

Analysis of cost accounting with a strategic emphasis. Selected topics include process costing, activity-based costing, variance analysis, joint cost allocations, and the Theory of Constraints. *Prerequisite: ACTG 12.* (5 units)

138. Tax Planning and Business Decisions

A basic introduction to the tax treatment of transactions and events affecting both individuals and businesses and the conceptual framework underlying taxation. Includes issues of importance for successful tax planning with an emphasis on income and expense recognition, individual taxation, and property transactions. Assumes no prior knowledge of the tax law. *Prerequisites: ACTG 130 and ACTG 131. (ACTG 131 may be taken concurrently.)* (5 units)

140. Government and Non-Profit Accounting

This course studies the accounting and reporting requirements used by government and not-for-profit (NPO) entities. For governmental accounting, the class focuses on the categorization of the major government fund types and the terminology associated with Governmental Accounting Standards Board (GASB) Generally Accepted Accounting Principles (GAAP). For NPO accounting, the class focuses on the provisions of FAS 116 and FAS 117. Recommended for students taking the CPA exam. *Prerequisite: ACTG 131.* (3 units)

150. Forensic Accounting

Forensic accounting deals with the application of accounting methods to legal problems, and comprises investigative accounting and litigation support activities. Investigative accounting (usually referred to as fraud accounting) refers to the role of the accountant in determining the existence and extent of asset misappropriation and/or financial statement fraud. Litigation support activities include those professional services provided by accountants to attorneys in support of civil or criminal litigation. In addition to examining both aspects of forensic accounting, the legal system and the role of the forensic accountant as an expert witness will be discussed. *Prerequisite: ACTG 131.* (5 units)

151. Financial Statement Analysis

Provides a framework for analyzing financial statements and develops skills useful in evaluating company performance, liquidity, solvency, and valuation in the context of the company's strategy and competitive environment from a user perspective. *Prerequisites: ACTG 11 and FNCE 121 or FNCE 121S.* (5 units)

152. International Accounting and Financial Reporting

Understanding similarities and differences in financial reporting practices globally is vital for all organizations involved in international business. The course takes a user perspective to international financial reporting. It examines economic and social factors that affect financial reporting practices, classifies global patterns in financial reporting, and studies the effect of the diversity in financial reporting on corporate investment and financing decisions. Technical issues covered include accounting for foreign currency transactions, accounting for the effects of inflation, international transfer pricing,

and international financial statement analysis. *Prerequisites: ACTG 130, MGMT 80, and FNCE 121 or FNCE 121S.* (5 units)

161. Junior Contemporary Business Seminar Series I

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisites: ACTG 12 and ACTG 20. (ACTG 20 may be taken concurrently if necessary.)* (2 units)

162. Junior Contemporary Business Seminar Series II

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisites: ACTG 12 and ACTG 20. (ACTG 20 may be taken concurrently if necessary.)* (2 units)

171. Senior Contemporary Business Seminar Series I

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars from a list of recommended seminars and presentations offered throughout the University. *Prerequisite: Open only to senior declared accounting majors.* (2 units)

172. Senior Contemporary Business Seminar Series II

A series of seminars covering topics pertinent to those pursuing a professional accounting career. Students are required to attend sessions with the course instructor, attend seminars sponsored by the Department of Accounting, or choose additional acceptable seminars and presentations offered throughout the University. *Prerequisite: Open only to senior declared accounting majors.* (2 units)

191. Peer Educator in Accounting

Work closely with the department to help students in core accounting classes understand course material, think more deeply about the material, and feel less anxious about testing situations. *Prerequisites: Declared accounting major and permission of instructor and chair required prior to enrollment.* (1 or 2 units)

194. Accounting Case Analysis

A practicum in which students form teams, research accounting issues, present the results of their research, and explain their research recommendations before a panel of judges. This course may be repeated for credit. *Prerequisite: Enrollment is by permission of the department chair.* (1 or 2 units)

197. Special Topics in Accounting

Offered occasionally to introduce new topics not covered by existing electives. Consult quarterly schedule of classes for description. *Prerequisite: ACTG 131.* (2–5 units)

198. Accounting Internship

Opportunity for upper-division students to work in local accounting/corporate firms. Two written reports and the employer's evaluation of the student's work will be required. This course may be repeated for credit, depending on nature of assignment. *Prerequisite: Declared accounting major and permission of instructor and chair required prior to enrollment.* (2, 3, or 5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. *Prerequisite: Declared accounting major and permission of instructor and chair required prior to enrollment.* (1–5 units)

DEPARTMENT OF ECONOMICS

Professors: Mario L. Belotti *(W.M. Keck Foundation Professor),* William F. Donnelly, S.J., Alexander J. Field *(Michel and Mary Orradre Professor),* John M. Heineke, William A. Sundstrom, Thaddeus J. Whalen Jr.
Associate Professors: Henry Demmert, Carolyn L. Evans, Linda Kamas, Michael Kevane *(Department Chair),* Kris J. Mitchener *(Robert and Susan Finocchio Professor),* Helen Popper, Dongsoo Shin
Assistant Professor: Homa Zarghamee

As one of the social sciences, economics studies how the choices we make as individuals—as consumers and producers, as savers and investors, as managers and employees, as citizens and voters—combine to determine how society uses its scarce resources to produce and distribute goods and services. This practical, useful discipline provides insights into important issues such as the determinants of wealth and poverty; unemployment, inflation, international trade, and economic growth; and success and failure in the marketplace. The rigorous, systematic analysis that the study of economics brings to bear on these and other real-world issues provides excellent preparation for careers in both the private and the public sectors, as well as for graduate study in economics, business, public policy, and law. Economics graduates pursue varied careers in business, law, banking and finance, government service, education, and private consulting. Students considering graduate study in economics leading to a master's or doctoral degree are strongly encouraged to meet with their advisor as early as possible to plan an appropriate course of study.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and Leavey School of Business requirements for the Bachelor of Science in Commerce degree, students majoring in economics must complete the following departmental requirements:

- ECON 113, 114, 115, and 181 or 182
- Three upper-division economics electives, at least two of which must be completed after ECON 113 and 115

REQUIREMENTS FOR THE MINOR

Students with a minor in economics through the College of Arts and Sciences must complete the following requirements:

- ECON 1, 2, 3, 113, 115
- Two additional upper-division economics courses
- MATH 11 or 30

LOWER-DIVISION COURSES

1. Principles of Microeconomics

Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

1E. Principles of Microeconomics

Special section of ECON 1 emphasizing environmental applications of economics. Introduction to microeconomics and its applications to business decisions and public policy. Topics include supply, demand, and the coordinating role of prices in a market economy; the behavior of business firms, including output and pricing decisions; competition and monopoly; government policies and regulations affecting markets. (4 units)

2. Principles of Macroeconomics

Determinants of national income and product in the long run and short run; inflation, unemployment, and business cycles; monetary and fiscal policies; and economic growth. *Prerequisite: ECON 1.* (4 units)

3. International Economics, Development, and Growth

Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. *Prerequisite: ECON 2.* (4 units)

3H. International Economics, Development, and Growth

Honors section. Analysis of international trade theory and policy, balance-of-payments adjustments and exchange-rate regimes, and economic development. Must be in the University Honors or Leavey Scholars Program, or have permission of instructor. *Prerequisite: ECON 2.* (4 units)

UPPER-DIVISION COURSES

Prerequisites: Unless otherwise noted, ECON 1, 2 and 3 are required for all upper-division economics courses.

101. Resources, Food, and the Environment

Exploration of relationship among food production, resource use, and the environment. Topics include biotechnology, the green revolution, resource depletion, environmental degradation, and food safety. *Prerequisites: None.* (5 units)

111. Economics of the Environment

Economic analysis of environmental issues and government policies for environmental protection. Applications to important environmental issues, such as global climate change, water and air pollution, hazardous wastes, biodiversity, and endangered species. *Prerequisite: ECON 1.* (5 units)

113. Intermediate Microeconomics I

Theory of rational individual choice and its applications to decision making, consumer demand, and social welfare; theory of the firm; production and costs. *Additional prerequisite: Math 11 or 30.* (5 units)

114. Intermediate Microeconomics II

Determination of price and quantity by profit-maximizing firms under different market structures; strategic behavior; general equilibrium; market failure and government policies. *Additional prerequisite: ECON 113.* (5 units)

115. Aggregate Economic Theory

Macroeconomic analysis, emphasizing modern macroeconomic models for explaining output, employment, and inflation in the short run and long run. Macroeconomic policymaking, including fiscal and monetary policy. *Additional prerequisite: Math 11 or 30.* (5 units)

120. Economics of the Public Sector

Microeconomic analysis of the role of government in the market economy. Supply of public goods and services, government's role in controlling externalities and regulating private industry, and the economics of the political process. (5 units)

122. Money and Banking

Theoretical, institutional, and historical approach to the study of money and banking, with particular emphasis on the relationship between the monetary and banking system and the rest of the economy. (5 units)

126. Economics and Law

Economic analysis of law and legal institutions focusing on the common law areas of property, contracts, and torts. (5 units)

127. Public Finance: Taxation

Analysis of various tax policies and their effect on the economy. Individual income taxes, corporate income taxes, consumption taxes, payroll taxes, state and local taxes, and other alternative forms of taxation. (5 units)

129. Economic Development

Causes and consequences of economic growth and poverty in less developed countries; analysis of the role of government policies in economic development. (5 units)

130. Latin American Economic Development

Examination of the economic development of Latin American countries, with particular emphasis on the relationships between economic growth and their social, political, and economic structures. (5 units)

134. African Economic Development

Examination of the economic development of sub-Saharan African countries, with particular emphasis on the relationships between economic growth and their social, political, and economic structures. (5 units)

135. Gender Issues in the Developing World

Explores the gendered nature of poverty in the developing world, with special focus on sub-Saharan Africa, using applied statistical analysis and economic theory. *Additional prerequisite: ECON 113.* (5 units)

136. 20th-Century Economic History

The development of the U.S. economy during the 20th century. Topics include the causes and consequences of economic growth, the Great Depression, the rise of government regulation, the changing role of women in the workforce, and the increasing internationalization of markets during the postwar period. *Additional prerequisite: ECON 115.* (5 units)

137. World Economic History

Development of Western and non-Western economies since the late 19th century. Topics include globalization and economic integration, convergence and divergence in economic growth across countries, international monetary systems, and the impact of alternative policies and institutional regimes on economic performance. (5 units)

138. History of Economic Thought

Origins and evolution of economic ideas in their historical and philosophical context. Emphasis on the theories of Adam Smith, David Ricardo, and Karl Marx, as well as the emergence of modern microeconomics and macroeconomics in the 19th and 20th centuries. (5 units)

139. American Economic History

Study of growth and institutional change in the U.S. economy since colonial times. Topics include early industrialization, the economics of slavery, and the rise of large business enterprises and labor unions. (5 units)

150. Labor Economics

Study of labor productivity, incomes and employment, and how these are affected by labor organizations and labor legislation. *Additional prerequisites: ECON 113 and OMIS 41.* (5 units)

155. Economics of Immigration

Examines economic impacts of post-1967 immigration to the United States. Topics include determinants of the migration decision, extent of "assimilation" of immigrants into the U.S. educational system and economy, and economic impacts of immigration on natives. *Additional prerequisite: OMIS 41.* (5 units)

156. Real Estate Economics

Economic analysis of real estate markets, including supply of and demand for land and improvements, legal aspects of real estate ownership and transactions, government regulation and taxation of real estate, and real estate markets in urban and regional economies. *Additional prerequisite: OMIS 41.* (5 units)

160. The Economics of Poverty and Inequality

Examines theories and evidence regarding poverty and economic inequality in the United States. Evaluates alternative public policies aimed at combating poverty. (5 units)

164. Vocation and Gender: Seeking Meaning in Work and Life

An interdisciplinary examination of vocation, understood as both a meaningful career and life outside of work. Incorporates theoretical and empirical methods of the disciplines of communication and economics to provide a rich set of tools with which to make discerning decisions on personal vocation. Economic models and empirical studies provide the framework for considering life choices, while the field of communication enables analysis of the ways individuals and groups engage in interpersonal, organizational, and mediated communication surrounding work/life issues. *Prerequisite: Junior or senior standing. ECON 1, 2, and 3 are not required, but some prior economics course(s) are recommended.* (5 units)

170. Mathematical Economics and Optimization

Generalization and reformulation of many familiar micro- and macroeconomic models as mathematical systems. Focus on exploring the properties of these models using mathematical techniques. *Additional prerequisites: MATH 12 or 31, ECON 114 and 115 or permission of instructor.* (5 units)

172. Game Theory

Study of multi-person decision problems. Topics include solution concepts for games, strategic behavior, commitment, cooperation, and incentives. Games of complete and incomplete information. Emphasis on applications to real-world economic behavior. *Additional prerequisites: ECON 113 and MATH 12 or 31.* (5 units)

173. Econometrics

Statistical methods to analyze economic data. Estimation and hypothesis testing using multiple regression; time series and cross-section data. *Additional prerequisite: OMIS 41.* (5 units)

181. International Trade

Analysis of the theories of international trade and strategic interactions; assessment of the empirical patterns of trade; analysis of the political economy of protection, and applications to policies guiding international competition. *Additional prerequisite: ECON 113.* (5 units)

182. International Finance and Open Economy Macroeconomics

Analysis of the monetary aspects of international economics, including the balance of payments, exchange rates and foreign exchange markets, speculative attacks and currency crises, and the implications of international trade and capital flows for macroeconomic activity and policy. *Additional prerequisite: ECON 115.* (5 units)

185. Economics of Technological Change

The economic determinants and consequences of technological change. Topics include research and development, joint ventures, patents and other intellectual property, university-industry and government-industry collaboration, and the relationship between antitrust and other regulatory policies and technological advances. (5 units)

190. Economics Seminar

Seminar on contemporary economic theories and problems. *Admission by invitation only.* (5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisite: Written proposal must be approved by instructor and chair at least one week prior to registration.* (1–5 units)

DEPARTMENT OF FINANCE

Professors: Sanjiv Das *(Department Chair),* Atulya Sarin, Hersh Shefrin *(Mario L. Belotti Professor),* Meir Statman *(Glenn Klimek Professor)*
Associate Professors: George Chacko, Robert Hendershott, Hoje Jo
Assistant Professor: Carrie Pan

Finance is at the center of well-managed businesses, from high-technology companies to mutual fund companies. Development of knowledge and managerial skills in the corporate and investment settings are the major goals of the finance program. Graduates with a degree in finance pursue careers as corporate financial officers, traders, investment managers, financial analysts, financial planners, investment bankers, stockbrokers, regulators, and other specialties. Corporate finance officers manage the assets and value of corporations. They examine which new products and investments will be profitable, analyze the most cost-effective ways to produce them, and determine where to get the money needed to fund new ventures. Personal financial planners and stockbrokers help people make wise investments by selecting good stocks and assembling efficient portfolios. Students in finance also learn how to understand and analyze information from capital markets, engage in mergers and acquisitions, and undertake investments in new ventures, real estate, and international markets.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and Leavey School of Business requirements for the Bachelor of Science in Commerce degree, students majoring in finance must complete the following departmental requirements:

- FNCE 124 and 125
- Three upper-division finance electives

UPPER-DIVISION COURSES

121. Financial Management

Introduction to the basic concepts of financial risk and return, the valuation of uncertain future cash flows, working capital and fixed asset management, and cost of capital. Topics include time value of money, financial analysis and forecasting, valuing corporate securities (stocks and bonds), cash management, capital budgeting, short- and long-term financing, and dividend policy. *Prerequisites: OMIS 40, ACTG 11 and 12 and proficiency with spreadsheets.* (5 units)

121S. Financial Management

Introduction to the basic concepts of financial risk and return, the valuation of uncertain future cash flows, working capital and fixed asset management, and cost of capital. Topics include time value of money, financial analysis and forecasting, valuing corporate securities (stocks and bonds), cash management, capital budgeting, short- and long-term financing, and dividend policy. *Prerequisites: Restricted to students in the Leavey Scholars Program. OMIS 40, ACTG 11 and 12, and proficiency with spreadsheets.* (5 units)

124. Investments

Introduction to the nature and functions of securities markets and financial instruments. The formulation of investment goals and policies, trading strategies, and portfolio management. Emphasis on security analysis and valuation. *Prerequisite: FNCE 121 or 121S.* (5 units)

125. Corporate Financial Policy

In-depth examination of the interrelationships between corporate investment and financing decisions and their impact on a firm's pattern of cash flows, return, and risk. Special emphasis on the development of analytical techniques and skills for analyzing performance reflected in financial statements. Case studies are used. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

126. Money and Capital Markets

Role and function of financial institutions, financial flows, interest rate structures, money, and capital markets. Emphasis on the implications for the formulation of business financial policy. This course is intended as a thorough introduction to the various markets that comprise a fair and efficient financial system. The financial system in capitalistic economies consists of various interacting markets, each with well-defined institutions and agents. This course explores the ideas and mechanisms by which value is created by financial markets, the roles of players in the system, the flow of information and the design features that manage incentive problems in a practical manner. Traditional courses in money and banking tend to be institutionally focused; in contrast, this course is market-focused. Common themes and concepts will be developed by the exploration of a new market in each class. Students will survey various markets with a view to a complete understanding and technical mastery of the role of the market, its players, traded securities, and risks. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

128. Real Estate Finance

Exploration of the real estate market, including investments in residential and commercial real estate by individuals, partnerships, and trusts. Emphasis is on the valuation and cash flow analysis of these projects and an understanding of financing alternatives. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

130. Ethics in Finance

Exploration of the ethical dimension of financial markets. Topics include insider trading, moral hazard, agency, adverse selection, and financial market regulations concerning disclosure, price manipulation, suitability, trading interruptions, margin requirements, and short-sale restrictions. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

135. Applied Portfolio Management

This course is designed to provide a highly rigorous and analytic framework for applied work in investments and portfolio management. Students who master the course material will acquire the analytical tools and financial theory necessary to make rational investment decisions and understand the paradigms by which investment portfolios are managed. The coursework involves an analysis of contemporary theories and techniques in portfolio management available to professional portfolio managers. Significant literature that emphasizes the role of the modern portfolio manager in achieving diversification and client investment goals is reviewed and evaluated. *Prerequisites: FNCE 121 or 121S, 124, and OMIS 40 and 41.* (5 units)

141. New Venture Finance

This class describes the financing environment for young companies and how the private equities market functions. Students will learn how investment funds are structured, investment contracts are written, and the economics of different private equity models work. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

151. International Finance

Examination of the functioning of the international monetary system, foreign exchange markets, and the financial problems of business firms operating internationally. Topics covered include hedging exchange rates, balance of payments, international investment and financing, financial markets, banking, and financial management. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

163. Investment Practice

The practice of portfolio management using a portion of the University's endowment fund to acquire real-life investment experience. Various investment objectives will be explored, including derivatives to protect current positions, fixed income, and equity investments. Course meets over three quarters. Students must earn 6 units in order for the course to count toward major. *Prerequisites: FNCE 121 or 121S, 124, and instructor approval.* (2 units)

170. Business Valuation

Practical valuation tools for valuing a company and its securities. Valuation techniques covered include discounted cash-flow analysis, estimated cost of capital (cost of equity, cost of debt, and weighted average cost of capital), market multiples, free-cash flow, and pro-forma models. *Prerequisites: FNCE 121 or 121S, and 124.* (5 units)

180. Open Book Management

Open book management is a system that places finance and accounting at the center of management processes for decision making and monitoring. The course uses simulation techniques to teach students how to create a corporate culture around the principles of open book management, particularly the treatment of agency conflicts and the use of effective business processes. *Prerequisites: FNCE 121 or 121S, 124 and 125.* (5 units)

198. Internship/Practicum

Opportunity for selected upper-division students to work in companies and nonprofit organizations. *Prerequisites: Finance major, junior or senior standing, successful completion of FNCE 121 or 121S, and permission of instructor and chair required one week prior to registration. Anything less than 5 units will not count toward major requirements.* (1–5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. Prerequisites: Declared finance major, junior or senior standing, and written proposal must be approved by instructor and chair one week prior to registration. (1–5 units)

DEPARTMENT OF MANAGEMENT

Professors: Gregory Baker, David F. Caldwell *(Stephen and Patricia Schott Professor),* André L. Delbecq *(J. Thomas and Kathleen L. McCarthy University Professor),* Terri Griffith, James L. Koch *(Jan and Bill Terry Professor of Management),* Dennis J. Moberg *(Gerald and Bonita A. Wilkinson Professor),* Barry Z. Posner, Manuel G. Velasquez *(Charles J. Dirksen Professor of Business Ethics)*
Associate Professors: James L. Hall, Tammy L. Madsen *(Department Chair)*
Assistant Professors: Michael Fern, Niki Den Nieuwenboer, Jennifer Woolley
Acting Assistant Professor: Nydia MacGregor

The Management Department's curriculum emphasizes rigorous analysis and managerial application. Courses are offered in organizational behavior and design, human resource management, industrial relations, managerial communication, leadership, and family business management. Additional courses in strategic management, business and public policy, business ethics, and international management provide a general management perspective. Management majors are those who want to develop balanced general management skills or to specialize in human resource management. Students in other majors who aspire to supervisory or managerial positions will find several of the department electives useful.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and Leavey School of Business requirements for the Bachelor of Science in Commerce degree, students majoring in management must complete the following departmental requirements:

- MGMT 161
- Four courses selected from MGMT 163, 164, 166, 167, 169, 170, 171, 174, 175, 197, 198, and 199

LOWER-DIVISION COURSES

6. Business Ethics

A normative inquiry into the ethical issues that arise in business and how they should be managed. Attention is given to current moral issues in business, to ethical theories and their implications for these issues, and to the managerial implications. Topics may include truth in advertising, corporate social responsibility, affirmative action, government regulation of business, quality of work life, environmental and resource issues, and ethical codes of conduct. (4 units)

6H. Business Ethics

Honors section. A normative inquiry into the ethical issues that arise in business and how they should be managed. Attention is given to current moral issues in business, to ethical theories and their implications for these issues, and to the managerial implications. Topics may include truth in advertising, corporate social responsibility, affirmative action, government regulation of business, quality of work life, environmental and resource issues, and ethical codes of conduct. *Prerequisite: Enrollment restricted to students in the University Honors or Leavey Scholars programs.* (4 units)

8. Business Ethics in Practice

Provides students with hands-on experience in a nonprofit organization to prepare them for future work in service-based learning engagements. Students will work with, and

observe, employees in a nonprofit organization to gain an understanding of the value of the organization's daily work activities and its contribution to society. The course will help students recognize the benefits of lifelong responsible citizenship and civic engagement. Prerequisite: MGMT 6 or PHIL 6. (2 units)

80. Global and Cultural Environment of Business

An examination of the basic conceptual vocabulary and theories regarding the economic, political, and social influences on international business today. Topics may include international trade, financial systems, political institutions, cultural factors, corporate structure, and market entry. *Prerequisites: BUSN 70 or BUSN 170 and ECON 3.* (4 units)

UPPER-DIVISION COURSES

160. Organization and Management

Introduction to organization theory and practice with an emphasis on organizational behavior, inclusive of the contexts of the individual, the group, and the organization as a whole. *Prerequisite: Students must have completed 60 units.* (5 units)

160S. Organization and Management

Introduction to organization theory and practice with an emphasis on organizational behavior, inclusive of the contexts of the individual, the group, and the organization as a whole. *Prerequisites: Open only to students in the Leavey Scholars program. Students must have completed 60 units.* (5 units)

161. Management in Organizations

Introduction to management theory and practice including a historical perspective, and the roles and functions of management, as influenced by a sense of ethics and social responsibility in a global environment. *Prerequisite: MGMT 160 or 160S.* (5 units)

162. Strategic Analysis – The Business Capstone

Focuses on the processes by which managers position their businesses or assets to maximize long-term profits in the face of uncertainty, rapid change, and competition. Covers various frameworks for analyzing an industry's structure and a firm's competitive position and for developing a coherent, viable, and defensible firm strategy. Requires students to integrate and extend the knowledge and skills that they have developed throughout their coursework (i.e., marketing, finance, economics, organizational behavior, ethics, information systems, statistical analysis, operations management, accounting, etc.) into a "total" business perspective. Must be completed with a grade of "C" or better. *Prerequisites: FNCE 121 or 121S, MGMT 80, MGMT 160 or 160S, MKTG 181 or 181S, OMIS 41, and senior standing.* (5 units)

162S. Strategic Analysis – The Business Capstone

Focuses on the processes by which managers position their businesses or assets to maximize long-term profits in the face of uncertainty, rapid change, and competition. Covers various frameworks for analyzing an industry's structure and a firm's competitive position and for developing a coherent, viable, and defensible firm strategy. Requires students to integrate and extend the knowledge and skills that they have developed throughout their coursework (i.e., marketing, finance, economics, organizational behavior, ethics, information systems, statistical analysis, operations management, accounting, etc.) into a "total" business perspective. Must be completed with a grade of "C" or better. *Prerequisites: Enrollment restricted to students in the Leavey Scholars Program.*

FNCE 121 or 121S, MGMT 80, MGMT 160 or 160S, MKTG 181 or 181S, OMIS 41, and senior standing. (5 units)

163. Organizational Theory and Design

Theory and practice of organizational design. Issues include departmentalization and coordination; the effect of context and technology on structure; and organizational growth, change, and decline. *Prerequisite: MGMT 160 or 160S.* (5 units)

164. Entrepreneurship Management for Technology Ventures

This course is a systematic and practical study of new venture management using case analysis as the primary vehicle of learning and discussion. We will focus on entrepreneurial rather than lifestyle and salary-substitute firms. Entrepreneurial firms are those that bring new products and services to market by creating and seizing opportunities regardless of the resources they currently control. In financial terms, these firms are developed to create wealth and prosperity for all stakeholders. *Prerequisites: Students must have completed 60 units. ECON 3, ACTG 12, OMIS 41, and MGMT 160 or 160S.* (5 units)

166. Human Resource Management

Comprehensive review of the role and functions of human resource management departments in business organizations, with particular emphasis on selection and placement, training and development, and compensation systems. *Prerequisite: MGMT 160 or 160S, or permission of instructor.* (5 units)

167. Industrial Relations

Examination of union-management relations. Why do employees join unions? How are organizing campaigns and elections won? What are typical negotiating behaviors and strategies? Lecture/discussion, case analyses, negotiation and arbitration simulations, guest speakers. *Prerequisite: MGMT 160 or 160S, or permission of instructor.* (5 units)

169. Business and Public Policy

The impact of public policy on business and how businesses adapt to and influence public policies. Includes ideology, corporate social responsibility, government regulations, and business political activity. Lectures/discussions; case analyses. (5 units)

170. International Management

The international framework for trade and international investment, a critical discussion of the idea of globalization, the design and staffing of multinational organizational structures and multinational strategies. *Prerequisite: MGMT 80. (MGMT 160 or 160S recommended.)* (5 units)

171. Managerial Communication

Interpersonal and small group communication. Negotiating behavior. Oral and written communication. Integrates theory and skill-building through reading, case analysis, and practice. *Prerequisite: MGMT 160 or 160S, or permission of instructor.* (5 units)

174. Social Psychology of Leadership

A conceptual framework for understanding leadership and opportunities for developing leadership skills. This interactive course requires personal reflection into leadership experiences and fieldwork with executives. Note: This course is required for those completing the Leadership Studies Certificate Program. *Prerequisite: Students must have completed 87.5 units.* (5 units)

175. Managing Family Businesses

Issues include managerial and ownership succession, conflicts between family and nonfamily members, and conflicts between family and business cultures. Students will apply organizational behavior concepts to family business issues and develop a useful framework for analyzing and anticipating those issues. Class design incorporates cases, videos, and guest speakers. *Prerequisite: MGMT 160 or 160S.* (5 units)

197. Special Topics in Management

Offered occasionally to introduce new topics not covered by existing electives. Topics generally reflect the research interests of the faculty teaching the course. *Prerequisite: MGMT 160 or 160S.* (5 units)

198. Internship/Practicum

Opportunity for selected upper-division students to work in local organizations. *Prerequisites: MGMT 160 or 160S, and two courses from the following list: MGMT 163, 164, 166, 167, 169, 170, 171, 172, 174, 175. Students must have completed 60 units and have approval of the undergraduate committee one week prior to registration.* (1–5 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. *Prerequisites: MGMT 160 or 160S, and written proposal must be approved by instructor and chair one week prior to registration.* (1–5 units)

DEPARTMENT OF MARKETING

Professors: Dale D. Achabal *(L.J. Skaggs Distinguished Professor, Department Co-Chair),* Albert V. Bruno *(W.T. Cleary Professor),* Kirthi Kalyanam, Shelby H. McIntyre *(Department Co-Chair),* Edward F. McQuarrie
Associate Professor: J. Michael Munson
Assistant Professors: Xiaojing Dong, Ling-Jing Kao, Desmond Lo, Kumar Sarangee

Marketing operates at the cutting edge of a well-managed organization. Development of decision-making and managerial skills are the major objectives of the Department of Marketing program, with special emphases in innovation, high technology, retailing, and consumer products. Marketing is the function that links a business to its markets and customers. Marketing acts as the eyes and the ears for a firm, helping managers identify market opportunities and listen to customer needs and wants. It is also the firm's voice, handling communications with customers and deciding on advertising and sales messages. Finally, strategic marketing addresses competitive threats and opportunities, guiding a firm's efforts to deliver superior value. Because customer analysis and competitive advantage are so crucial to business success, a degree in marketing provides a solid foundation for a general management career leading to executive responsibilities. It can also provide the basis for a more focused career in such areas as advertising, retailing, sales, brand management, and market research.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling University Core Curriculum and Leavey School of Business requirements for the Bachelor of Science in Commerce degree, students majoring in marketing must complete the following departmental requirements:

- MKTG 182 and 183 (to be completed early in junior year)
- After completion of MKTG 182 and 183, three courses in an area of marketing emphasis chosen from one of the areas below:

Business and Technology Marketing Emphasis

- MKTG 185, 187, 188 (strongly recommended)
- MKTG 175, 176, 186 (recommended)

Consumer and Channel Marketing Emphasis

- MKTG 165, 175, 186, 187 (strongly recommended)
- MKTG 176 (recommended)

Individually Designed Marketing Emphasis

- Courses selected with the student's marketing faculty advisor. The three courses are typically selected from MKTG165, 175, 176, 178, 185, 186, 187, and 188.

The MKTG 198 Internship elective can be chosen with an internship topic and company which augments the student's career marketing goals. However, MKTG 198 cannot be substituted for a course in the three areas of marketing emphasis.

UPPER-DIVISION COURSES

165. Multi-Channel Retail Marketing

The design and management of store, catalog, and Internet-based retail channels. Topics include how retailers create value for the producer and the end user, the financial and marketing strategies that underlie retailing formats, target marketing decisions, category management, how retail price promotions work, managing customer service, and the execution of retail marketing decisions. Mini cases, video cases, an applied project, and guest speakers from industry will be utilized to provide practical illustration of various concepts and stimulate class discussion. *Prerequisite: MKTG 181 or 181S.* (5 units)

168. and 169. Advanced Retail Seminar

In-depth examination of a number of topics critical to future executives in a retailing environment. Focus is on the use of consumer information and information technology to improve managerial decision making. Topics include consumer trends, multi-channel retail models, analysis of high-performance retailers, building information-centric organizations, store operations, negotiation, sales promotion and advertising, merchandise and inventory planning, and supply chain management. *Prerequisites: MKTG 165, 181 or 181S, and declared retail studies minor. MKTG 168 must be taken prior to 169.* (5 units)

175. Internet Marketing

What is the role of e-commerce in today's marketing environment? How are marketers integrating e-commerce into their marketing activities? What are some of the major problems and opportunities that e-commerce activities pose for the marketing manager? Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

176. Services Marketing and Management

Effective marketing and management in service enterprises, including hospitality, tourism, financial services, retailing, health care, education, accounting, telecommunications, technical and information services, among others. Focus on customer satisfaction, service quality, service design and implementation, pricing, and promotion. Use of cases, field trips, and projects to develop and apply course concepts. *Prerequisite: MKTG 181 or 181S.* (5 units)

178. Marketing Across Cultures

Success in global markets requires developing marketing programs that are sensitive to cultural differences. This course emphasizes the cultural factors that drive consumption behavior in international markets. A sociocultural perspective is applied to traditional marketing concepts such as targeting, positioning, advertising, branding, pricing, and distribution to develop marketing programs to successfully penetrate international markets. Mechanisms for participating in foreign markets such as exports, licensing, and joint ventures are evaluated. Ethical marketing issues in international contexts are explored. *Prerequisites: MKTG 181 or 181S and MGMT 80.* (5 units)

181. Principles of Marketing

Introduction to the fundamental principles of contemporary marketing. Covers the role of marketing in society, marketing strategy and planning, segmentation, product policy, pricing decisions, promotion, and distribution. Stresses topical examples. Emphasizes application of basic principles, information sourcing, analytical thinking, and communication skills. *Prerequisite: Must have 60 units or greater, or permission of instructor.* (5 units)

181S. Principles of Marketing

Introduction to the fundamental principles of contemporary marketing. Covers the role of marketing in society, marketing strategy and planning, segmentation, product policy, pricing decisions, promotion, and distribution. Stresses topical examples. Emphasizes application of basic principles, information sourcing, analytical thinking, and communication skills. *Prerequisite: Enrollment restricted to students in the Leavey Scholars Program. Must have 60 units or greater, or permission of instructor.* (5 units)

182. Market Analysis

Study of the application of marketing research methodology to the solution of business problems. Role of marketing research: its design, execution, analysis, and presentation. Projects and use of computers to analyze data. *Prerequisites: OMIS 41 and MKTG 181 or 181S.* (5 units)

183. Customer Behavior

How consumers process information and make buying decisions. Investigation of influence factors, such as attitudes, personality, culture, motivation, perception, and reference groups on consumer decision making. Decision processes of industrial buyers in business-to-business markets are also studied and compared to those of individuals in consumer markets. Particular emphasis on understanding the decision-making process (both consumer and industrial) and its application to the development of sound marketing strategy. An applied project, videos, and mini-cases are used to illustrate the practical application of various concepts. *Prerequisites: OMIS 41 and MKTG 181 or 181S or permission of instructor.* (5 units)

185. Sales Management

This course puts the student in the role of being a prospective sales or marketing manager. The objective is to provide students with user-level knowledge of sales concepts and management methodologies necessary to effectively perform and manage the sales function. The format of the course enables the student to apply the use of these concepts to both selling consumer products and to high-tech, industrial direct selling. Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

186. Integrated Marketing Communications

Introduction to integrated marketing communications (IMC), this course provides a fundamental understanding of communication theory, marketing, branding, integrating marcom tactics, planning, and coordination of IMC programs. How traditional media including public relations, direct response, print advertising, collateral, sales support and trade shows is being integrated with the Internet and technology that is changing how companies and organizations communicate, collaborate, interact, and influence outcomes with stakeholder and targeted publics is addressed. This course provides students with the skills necessary to plan, develop, execute, and coordinate an integrated marketing communications campaign. Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

187. Strategic Product Marketing

Emphasis on the process of branding, the role of the product/brand manager in a company, along with the experience of executing marketing strategy. The course also focuses on new product development. *Prerequisite: MKTG 181 or 181S.* (5 units)

188. Business-to-Business Marketing

This overview demonstrates how business-to-business (B2B) marketing differs from business-to-consumer (B2C) marketing. Learn how to apply marketing principles and conceptual frameworks when business sells to business. Understand how such factors as demand, product, buyers, decision making, and relationships affect B2B marketing strategy. Business Practice Modules (BPM) delivered by leading industry practitioners expose students to current, real-life, functional practices. The role of the Internet in connecting, collaborating, interacting, online transactions and building relationships with targeted marketing segments is emphasized. Students will learn how leading Silicon Valley companies meet the challenges of marketing their products in today's global, Internet world. Project required. *Prerequisite: MKTG 181 or 181S.* (5 units)

197. Special Topics in Marketing

Occasional current and interdisciplinary courses offered on a one-time or infrequent basis or cross-listed with offerings in other departments. Consult quarterly schedule of classes for description. *Prerequisites: MKTG 181 or 181S and declared marketing major.* (5 units)

198. Internship

Opportunity for upper-division students to work in local firms and complete a supervised academic project in that setting. *Prerequisites: Declared marketing major, MKTG 181 or 181S, 182, and permission of faculty coordinator.* (1–3 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Independent studies are normally permitted only under special circumstances. *Prerequisite: Written proposal must be approved by instructor and chair at least two weeks prior to registration.* (1–5 units)

OPERATIONS AND MANAGEMENT INFORMATION SYSTEMS

Professors: Robert A. Collins *(Naumes Family Professor),* Manoochehr Ghiassi, Chaiho Kim *(Joseph S. Alemany Professor),* Steven Nahmias, Stephen A. Smith, Andrew Starbird
Associate Professors: Narendra Agrawal *(Department Chair),* Charles D. Feinstein, Andy A. Tsay
Assistant Professors: Wingyan Chung, Manoj Parameswaran, Mu Xia

As an operations and management information systems (OMIS) major, students focus on the use of computer information systems and analytical decision-making methods in business organizations. In addition to mastering the core Leavey School of Business requirements, students specialize in the skills needed to design, implement, and evaluate the computer-based systems that are necessary to manage business operations effectively. In today's fast-changing, information-driven corporate environment, OMIS majors are in a unique position to develop practical, integrated solutions to complex problems. Their training in both information systems and business places OMIS majors on the fast track toward satisfying and exciting careers. In addition to the major in OMIS, the OMIS and Accounting departments offer a joint major in accounting and information systems.

REQUIREMENTS FOR THE MAJORS

In addition to fulfilling University Core Curriculum and Leavey School of Business requirements for the Bachelor of Science in Commerce degree, students majoring in operations and management information systems and in accounting and information systems must complete the following departmental requirements:

Major in Operations and Management Information Systems

- OMIS 30 or OMIS 31 (OMIS majors and minors may use either of these courses to satisfy the Information Systems requirement in the Leavey School of Business curriculum)
- OMIS 105, 106, and 107
- Three courses from OMIS 109, 110, 111, 112, 113, 117, 135,137, 150, 170, and 173

Major in Accounting and Information Systems

- ACTG 20, 130, 131, 132, 135, 136, and 138
- OMIS 30 or OMIS 31
- OMIS 105, 106, and 150
- One course from OMIS 111, 113, 135

Accounting and information systems majors may use either OMIS 30 or OMIS 31 to satisfy the information systems requirement in the Leavey School of Business curriculum.

REQUIREMENTS FOR THE MINOR

The OMIS department offers a minor in management information systems for both non-OMIS majors in the Leavey School of Business as well as nonbusiness majors. This minor provides non-OMIS majors the opportunity to enhance their understanding of information technology in general and how to apply this technology to their major field of study. Upon completion of the requirements for the minor, a certificate of completion will be awarded to the student.

Students with a minor in management information systems must complete the following requirements:

- OMIS 30 or OMIS 31 (OMIS minors may use either of these courses to satisfy the Information Systems requirement in the Leavey School of Business curriculum)
- OMIS 105 (Database Management Systems)
- Three courses from OMIS 107, 111, 113, 135, 137, or 150

Nonbusiness students with a minor in management information systems must also complete the following requirements:

- One course in mathematics from MATH 7, 11, or 30
- One course in statistics and data analysis from OMIS 40, MATH 8, PSYC 40, or COMM 110
- Three courses in business from BUSN 70, MGMT 160, MGMT 161, MKTG 181, FNCE 121, or OMIS 108

LOWER-DIVISION COURSES

17. Introduction to Business Computing

Use of an integrated set of software tools to solve business problems and communicate results of analysis. Software tools include spreadsheets, databases, graphical tools, and presentation tools. Use of computer networks to access business information. Course is restricted to accounting, finance, economics, marketing, management and OMIS majors; and MIS, general business, economics, retail studies, and information technology and society minors. *Prerequisite: Working knowledge of one word-processing software program.* (4 units)

30. Structured Programming

Basic principles of structured computer programming. Emphasis on problem solving, top-down program design, and thinking like a programmer. Students will do several programming assignments as the basis for business application development in database design and systems programming courses. Focuses on essential aspects of business software such as good design, modularity, efficiency, documentation, clarity, portability, and style. Students who receive credit for CSCI 10 (formerly Math 10), COEN 6, COEN 11, or OMIS 31 may not take this course for credit. (4 units)

31. Business Applications Programming

Develop and implement business application programs using software tools such as Visual Studio, Visual Web Developer, and Dreamweaver. Students will develop both Windows and Web-based applications. Assignments will use programming frameworks such as .Net Framework and PHP. Students who take CSCI 10 (formerly MATH 10), OMIS 30, COEN 6, or COEN 11 may not take this course for credit. (4 units)

34. Science, Information Technology, Business, and Society

Examines the complex relationship between science, information technology, business, and society. Investigates major breakthroughs in information technology, how they were influenced by business needs and how they affect business and society. Explores social and cultural values in business science and technology, and economic challenges posed by rapid business IT. Also examines the workings of major components of information technology used in business today. (4 units)

40. Statistics and Data Analysis I

First in a two-course sequence. Students learn to describe, summarize, and evaluate sets of data using numerical and graphical methods; to quantitatively express the probability of events and formulate the probability of joint, marginal, and conditional events; to employ probability distributions to describe the probabilities associated with discrete and continuous random variables; to design and evaluate sample data collection plans for quantitative and qualitative data; to measure and evaluate the error associated with parameter estimation using samples; and to construct interval estimates for the population mean and the population proportion. Students analyze real-world data using spreadsheet software. *Prerequisites: MATH 11 or MATH 30 and OMIS 17.* (4 units)

41. Statistics and Data Analysis II

Second in a two-course sequence. Students learn to formulate hypotheses about population parameters and define the errors associated with hypothesis testing; to construct confidence intervals and test hypotheses about means, proportions, and variances; to formulate and test hypotheses about multinomial data and independence; to construct and evaluate both simple linear and multiple regression models; and to predict the value of dependent variables using regression models. Analysis of real-world data using spreadsheet software. *Prerequisite: OMIS 40.* (4 units)

UPPER-DIVISION COURSES

105. Database Management Systems

Introduces students to issues related to database and database management systems (DBMS). Students will acquire technical and managerial skills in planning, analysis, logical design, physical design, implementation, and maintenance of databases. Hands-on training in relational database design, SQL, normalization, and database implementation will be provided. Use of DBMS software is required. Emphasis is placed on the problems and issues of managing in a database environment. *Prerequisite: OMIS 30, OMIS 31, or OMIS 34.* (5 units)

106. Systems Analysis and Design

Development of methods of structured systems analysis and design. Emphasis on information systems for business applications. Methods include physical modeling, logical modeling, flowcharts, data flow diagrams, hierarchy (HIPO) models, structured English, entity-relationship diagrams, and structure charts. Application of these tools to a systems analysis and design project is required. (5 units)

107. Systems Programming

Discussion of the fundamental concepts of systems programming. Major focus on the overall structure and capabilities of modern operating systems (LINUX/UNIX, Windows, etc.) and how to use operating system facilities to manipulate files and processes. Also covers shells and scripting programming concepts for performing system-level programming assignments on dedicated computer systems. Development of several

software assignments utilizing systems programming concepts is required. *Prerequisite: OMIS 30 or OMIS 31.* (5 units)

108. Operations Management

Survey of analysis and design methods for business systems that produce and deliver goods and services. Topics chosen from the following: process analysis, sales forecasting, production planning and scheduling, inventory control, materials requirement planning, quality control, "just-in-time" manufacturing techniques, and supply chain management. *Prerequisite: OMIS 41.* (5 units)

108S. Operations Management

Survey of analysis and design methods for business systems that produce and deliver goods and services. Topics chosen from the following: process analysis, sales forecasting, production planning and scheduling, inventory control, materials requirement planning, quality control, "just-in-time" manufacturing techniques, and supply chain management. *Prerequisite: Enrollment restricted to students in the Leavey Scholars Program. OMIS 41.* (5 units)

109. Computer Decision Models

Methods for solving decision problems encountered in business situations. Emphasis on problem formulation and application of spreadsheet-based algorithms for solution. Linear models and linear programming. Sensitivity analysis. Network models. Integer and nonlinear programming. Decision analysis and value of information. Dynamic analysis and principle of optimality. *Prerequisite: OMIS 41.* (5 units)

110. Computer Simulation Modeling

Examination of computer simulation modeling for the design and operation of complex processes or systems. Theory and techniques of simulation and simulation languages such as SLAM, GPSS, and GASP; inventory control; assembly and job-shop scheduling; and manufacturing process design. *Prerequisites: OMIS 41 and OMIS 30 or OMIS 31.* (5 units)

111. Computer Communications Systems

Designed to provide the IS professional with a basic literacy in communication technologies driving the digital economy. Basics of data and telecommunications, LANs, WANs, broadband, analog and digital communications, Internet architecture and concepts, wireless including cellular and WLANs, and market and regulatory issues are covered. Emphasis on being able to assess the business impact of networking technologies; covers state-of-the-art. *Prerequisite: OMIS 30, OMIS 31, or OMIS 34.* (5 units)

112. Artificial Intelligence and Expert Systems for Business

This course will examine the applications of artificial intelligence and expert systems for business. Topics will include rule-based systems, data and Web mining, and other knowledge-based systems. *Prerequisite: OMIS 30 or OMIS 31.* (5 units)

113. Data Warehousing and Business Intelligence

This course will examine a broad collection of software tools and analytical applications that allow enterprises to analyze data maintained in data warehouses and operational databases for business intelligence. Topics to study include data storage and data integration architecture, enterprise analytics, business intelligence tools and presentations. Students will acquire hands-on experience in building business intelligence applications. *Prerequisite: OMIS 30 or OMIS 31.* (5 units)

117. Software Development Project

Integration of system and programming concepts to develop a comprehensive software system. Also presents an overview of software development methodology. *Prerequisite: OMIS 30 or OMIS 31.* (5 units)

135. Enterprise Resource Planning Systems

Study of data and process integration across a company onto a single computer system. Analysis of ERP system technologies, including databases. Class project requires setting up an ERP system module using Oracle and/or SAP systems. Case studies and guest speakers from industry. *Prerequisite: OMIS 105 or COEN 178.* (5 units)

137. Object-Oriented Programming

Introduction to object-oriented design methodology. Discussion of different programming paradigms, concepts of data abstraction, inheritance, and encapsulation. Topics include an overview of Java programming language, classes and objects, data abstraction, inheritance, I/O packages, exceptions, threads and GUI. Development of several programming assignments using Java is required. *Prerequisite: OMIS 30, OMIS 31, or equivalent.* (5 units)

145. Competitive Quality

Slogans like "Quality is Job 1"; "When it absolutely, positively has to be there overnight"; and "The Dependability People" leave little doubt as to the importance of quality in commercial competition. This course explores how quality contributes to competitiveness. The course starts by defining quality and introducing methods for measuring quality. The course investigates variation in quality and its effect on firm performance, and studies methods for monitoring and controlling quality including quality control charts and sampling inspection. Finally, in light of new developments in operations theory and in technology for tracking and monitoring products, the course also tackles strategic supply chain issues associated with quality. Case studies and field trips are used to bolster student understanding. *Prerequisites: ECON 1 and OMIS 108 or OMIS 108S.* (5 units)

150. Financial Information Systems

Course focuses on computer-based financial information systems that allow finance and accounting professionals to acquire and manage a company's financial system. Topics include the business functions of a financial information system, the technical aspects of the system, and the management issues of implementing such a system. Students will acquire hands-on experience using enterprise resource planning systems. *Prerequisite: OMIS 30 or OMIS 31.* (5 units)

170. Physical Database Design

Methodology for design of physical file structures to support single-and multiple-file applications. Query optimization using indexes. Data structures, file structures, file access methods, file manipulation, and algorithmic analysis. *Prerequisite: OMIS 105.* (5 units)

173. E-Commerce Technologies

An integrated course discussing topics needed to build, operate, and maintain e-businesses. Topics include scripting languages, mark up languages, security, online transaction, and multimedia operation. *Prerequisite: OMIS 30 or OMIS 31.* (5 units)

198. Internship

Opportunity for selected upper-division students to work in local businesses or government units or firms. Note: A student cannot use a collection of internship courses to satisfy the upper-division course requirement for either the OMIS major or the MIS minor. *Prerequisites: Upper-division standing and approval of the undergraduate committee one week prior to registration.* (1–2 units)

199. Directed Reading/ Directed Research

Independent projects undertaken by upper-division students with a faculty sponsor. Prerequisite: *Written proposal must be approved by instructor and chair one week prior to registration.* (1–5 units)

5

School of Engineering

Dean: M. Godfrey Mungal
Associate Dean for Undergraduate Studies: Ruth E. Davis
Associate Dean for Graduate Studies: Aleksandar Zecevic
Associate Dean for Research and Faculty Development: Nam Ling

The mission of the School of Engineering is to educate and serve students for the benefit of the Silicon Valley area, the state, the nation, and the world. The engineering school does this through academic programs that educate professional engineers who practice with competence, conscience, and compassion, through scholarly activities that create and disseminate new knowledge, and through service activities that benefit our various constituencies and humanity in general. The specialized Bachelor of Science programs in Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering are accredited by ABET.

All courses offered through the School of Engineering are taught under tenets set forth in the Engineering Honor Code. The Engineering Honor Code is a long-standing Santa Clara tradition instituted at the request of students. The code states: "All students taking courses in the School of Engineering agree, individually and collectively, that they will not give or receive unpermitted aid in examinations or other coursework that is to be used by the instructor as the basis of grading." Students and teachers cooperate and share responsibilities under the code. Teachers are responsible for making clear what aid is permissible and for using procedures that minimize temptations to violate the code. Students are responsible for behaving honorably, for actively ensuring that others uphold the code, and for being responsive to violations.

UNDERGRADUATE DEGREES

The School of Engineering confers the degree of Bachelor of Science with majors in civil engineering, computer engineering, computer science and engineering, Web design and engineering, electrical engineering, general engineering, and mechanical engineering. The Bachelor of Science degree in General Engineering can be individualized to accommodate the interests of a student. There is a predefined concentration that prepares a student for the field of bioengineering. In addition, the engineering school offers minors in engineering, computer engineering, computer science and engineering, electrical engineering, and mechanical engineering as well as an interdisciplinary minor in biomedical engineering. All of the undergraduate engineering programs require students to complete extensive course sequences in mathematics and natural science as well as engineering. Success in completing these critical course sequences is highly dependent upon having the necessary technical background at each stage. Accordingly, prerequisites for all engineering courses are strictly enforced.

REQUIREMENTS FOR THE BACHELOR OF SCIENCE

To qualify for the degree of Bachelor of Science in the School of Engineering, students must complete the minimum number of units specified for the particular major and satisfy the requirements of the University Core Curriculum and the departmental major.

University Core Curriculum

Critical Thinking and Writing

Two courses in composition:

- CTW 1 and 2 (engineering students should take sections with special emphasis on Science, Technology, and Society)

Advanced Writing

One course as specified in the respective departmental major requirements

Religion, Theology, and Culture

Three courses approved to satisfy the core requirements

Culture and Ideas 1 and 2

One course sequence from the approved list of Culture and Ideas course sequences

Mathematics and Natural Sciences

Course requirements are specified in the respective departmental major requirements

Second Language

Recommended proficiency in one foreign language; requirement is satisfied by two years of high school study in a foreign language

Social Science

The social science requirement may be met by any course from the approved list

Civic Engagement

The civic engagement requirement may be met by one of two options:

- One course with an approved civic engagement component
- A combination of ENGR 1 and a senior design project

Ethics

One course in general or applied ethics from the approved list

Diversity

One course from the approved list

Arts

The arts requirement may be met by one of two options:

- One course from the approved list
- A combination of ENGL 181 and a senior design project (pending approval)

Experiential Learning

One course with an approved experiential learning component

Pathways

Three courses with a common theme linked into a declared pathway

MINORS IN THE SCHOOL OF ENGINEERING

Minor in Engineering

The School of Engineering offers a minor in general engineering open to engineering and nonengineering majors. Requirements for the minor are outlined in the General Engineering section of this chapter.

Minor in Computer Engineering

The Department of Computer Engineering offers a minor in computer engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the Computer Engineering section of this chapter.

Minor in Computer Science and Engineering

The Department of Computer Engineering offers a minor in computer science and engineering open to engineering and nonengineering majors. Requirements for the minor are outlined in the Computer Engineering section of this chapter.

Minor in Electrical Engineering

The Department of Electrical Engineering offers a minor in electrical engineering open to engineering and non-engineering majors. Requirements for the minor are outlined in the Electrical Engineering section of this chapter.

Minor in Mechanical Engineering

The Department of Mechanical Engineering offers a minor in mechanical engineering open to engineering and nonengineering majors. Requirements for the minor are outlined in the Mechanical Engineering section of this chapter.

Minor in Biomedical Engineering

The School of Engineering offers an interdisciplinary minor in biomedical engineering designed for students who are science majors in the College of Arts and Sciences, students completing prerequisites for medical school, and engineering majors. Requirements for this minor are outlined in Chapter 6, Interdisciplinary Minors and Other Programs of Study.

CENTERS, INSTITUTES, AND SPECIAL PROGRAMS

Cooperative Education Program

The Cooperative Education Program integrates classroom work with practical experience by providing alternate or parallel periods of college education with periods of training in industry and government. The objective of the program is to provide students the

opportunity to enhance their academic knowledge, to further their professional development, and to learn how to work effectively as individual contributors and group members. The industrial training is related to the student's field of study and often is diversified to afford a wide range of experience. To qualify for the program, undergraduate students must have completed at least 90 quarter units and have a grade point average of 2.5 or higher. Credit earned in the program may be used to meet undergraduate degree requirements.

Center for Nanostructures

The Center for Nanostructures uses state-of-the-art equipment to educate students and to advance the field of nanoscale science and technology. The mission of the center is to conduct, promote, and nurture nanoscale science and technology, interdisciplinary research, and education activities at the University, and to position the University as a national center of innovation in nanoscience education and nanostructures research. Ongoing research projects include On-Chip Interconnect Modeling, Carbon Nanotubes/Nanofibers and Electrical/Biological System Interfaces. Faculty, graduate students, and undergraduate students utilize the center for research projects.

Combined Bachelor of Science and Master of Science

Combined Bachelor of Science and Master of Science degree programs are offered by the departments of Civil Engineering, Computer Engineering, Electrical Engineering, and Mechanical Engineering. Requirements for the combined degree programs are outlined in the appropriate departmental section of this chapter.

DEPARTMENT OF APPLIED MATHEMATICS

Senior Lecturer: Stephen A. Chiappari *(Department Chair)*

The Department of Applied Mathematics offers only graduate degree programs and operates in a service mode at the undergraduate level. Undergraduate courses offered by the department have been designed to bridge mathematical theory and engineering applications.

UPPER-DIVISION COURSES

106. Differential Equations

First-order linear differential equations, systems of linear differential equations, homogeneous systems of linear differential equations with constant coefficients, the Laplace transform, the solution of differential equations by Laplace transform. *Prerequisite: MATH 14 or MATH 21.* (4 units)

108. Probability and Statistics

Definitions of probability, sets, sample spaces, conditional and total probability, random variables, distributions, functions of random variables, sampling, estimation of parameters, testing hypotheses. *Prerequisite: MATH 14 or MATH 21.* (4 units)

118. Numerical Methods

Numerical solution of algebraic and transcendental equations, numerical differentiation and integration, and solution of ordinary differential equations. Solution of representative problems on the digital computer. *Prerequisites: AMTH 106 and one of the following: COEN 11, COEN 44, COEN 45, CSCI 10.* (4 units)

DEPARTMENT OF CIVIL ENGINEERING

Professor Emeritus: E. John Finnemore
Professors: Mark Aschheim, Sukhmander Singh *(Wilmot J. Nicholson Family Professor)*
Associate Professors: Steven C. Chiesa *(Department Chair),* Edwin Maurer, Reynaud L. Serrette *(Department Chair)*
Assistant Professor: Rachel He

The Department of Civil Engineering offers a well-balanced undergraduate program that strives to develop graduates who are capable of solving complex problems with fixed and oftentimes limited resources. The application of state-of-the-art skills, a sound understanding of engineering principles, the ability to communicate and articulate ideas, and preparation for lifelong learning are some of the key areas of focus in the civil engineering curriculum. At the completion of the undergraduate program, graduates are well equipped to enter the practice or pursue advanced studies in any of the civil engineering disciplines. The department provides students with the necessary guidance to develop their full potential within the context of their own personal experiences and the expectations of the profession. As graduates of the civil engineering program, junior engineers get involved in the planning, design, construction, and maintenance of the infrastructure that is critical to daily life, including buildings, transportation systems, airports, irrigation systems, water supplies, supply systems, and environmental protection facilities.

The Department of Civil Engineering has worked with its advisory board and other key constituencies to produce the set of Program Educational Objectives shown below. Specifically, the department has committed itself to providing a program that produces graduates who, within five years of graduation, will:

- Contribute positively to the design, construction, maintenance and advancement of civil engineering-based systems critical to a sustainable quality of life in a changing world
- Embrace the University mission and its corresponding goals
- Recognize their professional and personal responsibility to their community
- Recognize the need for a commitment to lifelong learning

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the University Core Curriculum requirements for the Bachelor of Science degree, students majoring in civil engineering must complete a minimum of 193 units and the following department requirements:

English

- ENGL 181, 182 (or approved equivalent)

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 106 (or MATH 22) and AMTH 108 (or MATH 122)
- CHEM 11
- PHYS 31, 32, 33
- CENG 20

Engineering

- ENGR 1
- ELEN 50
- MECH 10, 121, 122
- CENG 10, 15, 41, 42, 43, 115, 121, 125, 128, 132, 134, 135, 140, 141, 143, 145, 192A, 192B, 193, 194

Technical Electives

Three technical electives with at least one course from each of the two categories below:

- Design-focused electives: CENG 119, 133, 136, 137, 138, 142, 144, 146, 147, 150
- Analysis-focused electives: CENG 118, 123, 139, 148, 149, 151, 160, 161, 162, 163

The electives should be selected in consultation with an academic advisor to satisfy the requirements of the general civil engineering program or one of the approved emphasis area programs in civil engineering.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Civil Engineering offers a combined degree program leading to the Bachelor of Science and a Master of Science. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for a bachelor's degree and typically completes the requirements for a Master of Science in Civil Engineering within a year of completing the bachelor's degree.

Undergraduate students admitted to the combined degree program are required to enroll in the program between February of their junior year and December of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn a master's degree, students must fulfill all requirements for the degree, including the completion of 45 units of coursework beyond that applied to the bachelor's degree. No individual course can be used to satisfy requirements for both the bachelor's degree and master's degree.

CIVIL ENGINEERING LABORATORIES

The *Simulation and Design Laboratory* maintains Windows-based personal computers that are used in course assignments and design projects. Commercial software packages in all the major areas of civil engineering are available on the systems with user documentation available to students.

The *Concrete Testing Laboratory* contains facilities for mixing, casting, curing, and testing concrete cylinders and constructing reinforced-concrete test specimens.

The *Environmental Laboratory* is equipped with instrumentation needed for basic chemical and biological characterization of water, wastewater, and air samples as well as several pilot-scale treatment systems.

The *Geology Laboratory* is equipped with extensive rock and mineral samples as well as topographic, geologic, and soil maps.

The *Hydraulics Laboratory* is shared with the Department of Mechanical Engineering and contains a tilting flume that can be fitted with various open-channel fixtures.

The *Soil Mechanics Laboratory* contains equipment for testing soils in shear, consolidation, and compaction; equipment for other physical and chemical tests; field testing and sampling equipment; and a complete cyclic triaxial testing system with computer controls used for both research and instructional purposes.

The *Structural and Strength of Materials Laboratory* is equipped with three universal testing machines, a closed-loop MTS hydraulic system used for testing of structural assemblies under various load conditions, and a series of digital and analog instruments and high-speed data acquisition and control systems.

The *Surveying Laboratory* has a wide variety of equipment, including self-leveling levels, transits, theodolites, and a total station system available for instructional purposes.

The *Traffic Laboratory* has traffic volume counters that are used in studies to classify vehicles and measure their speeds in user-specified ranges and periods of time used for instructional and research purposes.

LOWER-DIVISION COURSES

5. Project Impacts on the Community and the Environment

Introduction to the decision-making concepts that determine the feasibility of a project. Aspects of project planning, evaluation, and implementation. Identification of impacts on the community and the environment. (4 units)

10. Surveying

Survey instruments: their use and care. Principles of topographic mapping, linear measurements, leveling, traverses, curves, boundary, and public surveys. Field laboratory. (4 units)

15. Computer Applications in Civil Engineering

Computer-based methods for technical problem solving. Introduction to some of the basic features in spreadsheet and math analysis programs to aid engineering solutions. Visual Basic programming in a spreadsheet environment. Graphical presentation of technical data. AutoCAD basics. Laboratory. (4 units)

20. Geology

Development and formation of geologic materials. Significance of structure, land form, erosion, deposition. Stream and shoreline processes. Surface water. Laboratory. (4 units)

41. Mechanics I: Statics

Resolution and composition of force systems and equilibrium of force systems acting on structures and mechanisms. Distributed forces. Friction. Moments of inertia. *Prerequisite: PHYS 31.* (4 units)

42. Mechanics II: Dynamics

Dynamics of a particle. Work and energy methods. Momentum methods. Kinetics of systems of particles. *Prerequisite: CENG 41.* (3 units)

43. Mechanics III: Strength of Materials

Analysis of stresses and strains in machines and structural members. Analysis of members subject to axial forces, torsion, bending, shear, and torsion under individual and combined loads. Stability of columns. Introduction to energy methods. Laboratory. *Prerequisite: CENG 41.* (5 units)

UPPER-DIVISION COURSES

115. Civil Engineering Materials

Common civil engineering materials, focusing on steel, concrete, and wood, and touching on asphalt and epoxy. Structure and properties of materials, their production processes, and experimental methods used for determining their key properties. Sustainability implications of materials choices. *Prerequisite: CHEM 11.* (4 units)

118. Construction Engineering

Construction management. Equipment. Drawings and specifications, cost estimating, bidding. Contracts, bonds, financing, insurance. Labor. Project planning and scheduling. *Prerequisite: Junior standing.* (3 units)

119. Designing for Sustainable Construction

Design strategies for sustainable commercial and residential construction. Use of LEED criteria for assessing sustainable construction. Team-based project planning, design, and construction. Economic evaluation of sustainable technologies. Overall project management. *Prerequisite: Junior standing.* (4 units)

121. Geotechnical Engineering

Origin, development, and properties of soils. Classification of soils and applications of engineering mechanics to soils as an engineering material. Water in soils. Soil-testing methods. Compaction, stabilization, consolidation, shear strength, and slope stability. Laboratory. *Prerequisites: CENG 20 and 43.* (4 units)

123. Environmental Reaction Engineering

Reaction stoichiometry and kinetics. Reactions of environmental significance. Dynamic and equilibrium system modeling. Reactor configurations and their effects on extent of the reaction. Laboratory. *Prerequisites: CHEM 11 or equivalent, AMTH 106, and junior standing.* (4 units)

125. Municipal Engineering Design

Various aspects of civil engineering as applied in municipal (public works) design practice. Maps and plats; site layout and earthworks; drainage; streets and utilities. Design laboratory. *Prerequisite: CENG 10.* (4 units)

128. Engineering Economics

Time value of money. Economic analysis of engineering projects. Planning and capital budgeting. Rate-of-return analysis. Depreciation. Cash-flow analysis. (2 units)

132. Structural Analysis

Analysis of statically determinate beams, trusses, and frames. Influence lines for beams and trusses. Analysis of statically indeterminate structures. Modeling and analysis of structures using commercial software applications. *Prerequisites: CENG 15 and CENG 43.* (4 units)

133. Timber Design

Timber structural systems. Design of structural members for tension, compression, bending, and shear. Design of shear walls and diaphragms. Connection and hardware design and specification. Timber design project required. *Prerequisite: CENG 132.* (4 units)

134. Structural Steel Design

Load and resistance factor design concepts of structural steel design for building structures. Types of load. Design of individual members including tension members, beams, and columns. Overview of connections. Steel design project is required. *Prerequisite: CENG 132.* (4 units)

135. Reinforced Concrete Design

Ultimate strength design of reinforced concrete members considering flexure, shear, and axial forces. Anchorage and development of reinforcing bars. Laboratory

includes experiments to illustrate influence of design requirements on structural behavior. *Prerequisite: CENG 132.* (5 units)

136. Advanced Concrete Structures

Analysis and design of reinforced-concrete frame and wall structures for gravity and lateral loads; use of strut and tie method for disturbed regions; and introduction to prestressed concrete. *Prerequisite: CENG 135.* (4 units)

137. Earthquake Engineering Design

Introduction to seismic sources, wave propagation, and effects on structures. Spectral representations of demands. Design according to current code provisions and using simplified pushover methods. *Prerequisite: CENG 132.* (4 units)

138. Geotechnical Engineering Design

Foundation exploration; bearing capacity and settlement analysis; spread foundations; piles and caissons; earth-retaining structures; loads on underground conduits; subsurface construction. *Prerequisites: CENG 121 and CENG 135.* (4 units)

139. Groundwater Hydrology

Groundwater occurrence, flow principles, flow to wells, and regional flow. Ground water contamination, management, and modeling. Field methods. Field trips. *Prerequisite: MECH 122.* (3 units)

140. Water Resources Engineering

Concepts, analysis, and engineering design related to various aspects of water resources: hydrologic cycle, evaporation, infiltration, precipitation, snow, flood frequency, water supply, and runoff management. Impacts of development, land use, and climate changes on water supply, and the importance of these changes to society. Laboratory. *Prerequisite: MECH 122 or permission of instructor.* (4 units)

141. Hydraulic Engineering

Principles of hydraulics; flow in pipes and pipe networks; water hammer and surge tanks; flow in open channels; hydraulic machinery. *Prerequisites: CENG 15 and MECH 122.* (4 units)

142. Water Resources Design

Design of system components for water supply and flood control projects including storage facilities, closed conduits, open channels, well fields, and pumping systems. *Prerequisites: CENG 140 and 141.* (4 units)

143. Environmental Engineering

Water and air quality. Water supply and pollution control; air pollution control. Management of solid wastes. Laboratory. *Prerequisites: CHEM 11, MATH 12, and junior standing.* (4 units)

144. Environmental Systems Design

Design of treatment and distribution systems for potable water. Design of collection and treatment systems for water pollution control and wastewater reclamation. Laboratory. *Prerequisites: CENG 141 and 143.* (4 units)

145. Transportation Engineering Design

Transportation systems analysis. Traffic flow. Highway geometric design, traffic control, transportation planning. Transportation policies and economics. *Prerequisites: CENG 10 and junior standing.* (4 units)

146. Design of Cold-Formed Steel Frame Structures

Introduction to the fundamentals of cold-formed steel frame construction. Review of current design and construction practice, specifications, standards and codes. Practical design of members and connection detailing. Understanding evaluation reports. *Prerequisite: CENG 133, 134 or 135.* (4 units)

147. Pavement Design

Paving materials. Geometric and structural design of highways. Urban street layout and details. Layout and design of airport runways. *Prerequisites: CENG 121 and 135.* (4 units)

148. Structural Systems

Introduction to principles for choosing structural systems and performance criteria. Fire, sound and thermal requirements for buildings. Estimation of design loads. Approximate techniques for system design and evaluation. Horizontal and vertical subsystems. *Prerequisite: CENG 132.* (3 units)

149. Civil Systems Engineering

Introduction to engineering systems analysis and management technologies and their applications to civil engineering problems such as transportation, assignment, critical path, and maximum flow problems. Topics include linear programming, nonlinear programming, probability, and queuing theory, as well as relevant applications to civil engineering problems. *Prerequisites: MATH 13 and junior standing.* (4 units)

150. Traffic Engineering: Design and Operations

Basic characteristics of motor vehicle traffic, highway and intersection capacity, applications of traffic control devices, traffic data studies, signal design, traffic safety. May be taken for graduate credit. *Prerequisite: CENG 145.* (4 units)

151. Special Topics in Transportation Engineering

Coverage of special topics in transportation engineering including dynamic traffic flow forecasting, analysis and application of traffic flow patterns, and static and dynamic traffic analysis and modeling for short-term and long-term planning and optimization. *Prerequisite: CENG 145.* (4 units)

160. GIS in Water Resources

Introduction to Geographical Information Systems (GIS) technology with applications in watershed analysis and hydrology. Obtaining and processing digital information for watersheds, mapping terrain, spatial analysis, computing river networks from digital elevation models, preparing data for hydrologic modeling for water supply and flood studies. *Prerequisites: Junior standing and experience with Windows directory and file management.* (3 units)

161. Sustainable Water Resources

Covers techniques related to analysis and design of water resources systems, from flood control projects to drinking water supply, as environmental and societal values shift. Material includes sustainable and low-impact design techniques, climate change impacts on water, assessing sustainability, life-cycle economics, and current topics. (3 units)

162. Computational Water Resources

Use of professional applications software to design and evaluate facility components and systems for water resources engineering projects. Laboratory. *Prerequisites: CENG 140 and 141.* (3 units)

163. Solid Waste Management

Characterization of solid waste streams. Overview of collection, transport, processing, and disposal options. Waste stream reduction and resource recovery strategies. (4 units)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Approval of department co-op advisor required. Letter grades based on content and presentation quality of report. (2 units)

192A. Civil Engineering Design Methods

Introduction to problem-solving methodology for design of civil engineering systems and components. Applications of engineering techniques and procedures to civil engineering design. Preliminary design studies and evaluation of alternatives. Environmental impact assessment. Selection of a topic for the Senior Design Project (CENG 193) and initial conceptual design. *Prerequisite: Senior standing.* (2 units)

192B. Development of Construction Drawings

Content and organization of construction drawings. Advanced CAD techniques. Role of drawings and written specifications. *Prerequisites: MECH 10 and junior standing.* (2 units)

193. Senior Design Project I

Investigation of an approved civil engineering project. The design process—including problem formulation, analysis, preliminary design, final design, and plans—is completed. Formal public presentation of results. *Prerequisites: CENG 192A and ENGL 181.* (4 units)

194. Senior Design Project II

Continuation of the senior project. Formal public presentation of the results. *Prerequisite: CENG 193.* (1 unit)

197. Special Topics in Civil Engineering

Subjects of current interest. May be taken more than once if topics differ. (1–4 units)

198. Internship

Time off campus with an engineering organization. Different aspects of work in the assigned professional office. Oral and written reports. *Prerequisites: Senior standing and approval of internship coordinator.* (4–5 units)

199. Directed Research

Investigation of an approved engineering problem and preparation of a suitable project report. Conferences with faculty advisor are required. *Prerequisite: Junior standing.* (1–5 units)

DEPARTMENT OF COMPUTER ENGINEERING

Professors: Ruth E. Davis *(Robert W. Peters Professor),* Nam Ling
Associate Professors: Darren Atkinson, Ronald L. Danielson, Silvia Figueira, JoAnne Holliday, Daniel W. Lewis, Qiang Li, Thomas Schwarz, S.J., Weijia Shang *(Department Chair)*

The Department of Computer Engineering offers major programs leading to the Bachelor of Science in Computer Engineering or Computer Science and Engineering or the Bachelor of Science in Web Design and Engineering. The computer science and engineering program features a balanced core in which each student studies the engineering aspects of software and hardware as well as the mathematical foundations of computation. Computer science and engineering electives permit students to build on this

core with varying emphasis, depending on their interests. The Web design and engineering program combines a technical education in computing with courses in graphic art, communication, and sociology to enable its graduates to understand the engineering infrastructure of the Web, how the Web affects society, and how the ways in which society uses the Web create new demands on technology. Instruction and research in the department's programs are supported by the facilities of the Engineering Design Center and the University's Information Technology Center.

REQUIREMENTS FOR THE MAJORS

Bachelor of Science in Computer Engineering or in Computer Science and Engineering

In the following, the program, which is identical for both titles, is referred to as "computer science and engineering." In addition to fulfilling the University Core Curriculum requirements for a Bachelor of Science degree in the engineering school, students majoring in computer science and engineering must complete a minimum of 190 units and the following departmental requirements:

English

- ENGL 181, 182

Mathematics and Natural Sciences

- MATH 11, 12, 13, 14
- AMTH 106 (or MATH 22) or an advisor-approved mathematics or natural science elective
- AMTH 108 (or MATH 122)
- MATH 53 or CSCI 166 or AMTH 118
- CHEM 11 or an advisor-approved natural science elective
- PHYS 31, 32, 33

Engineering

- ENGR 1
- ELEN 50, 115, 153
- COEN 10 (or demonstrated equivalent programming proficiency)
- COEN 11, 12, 19, 20, 21, 70, 122, 146, 174, 175, 177, 179
- COEN 194 (or ENGR 194), COEN 195 (or ENGR 195), COEN 196 (or ENGR 196)

Computer Science and Engineering Electives

Three upper-division courses selected from COEN 100–180, ELEN 123 (or MECH 123), 133, and 134 in an emphasis area selected in consultation with an academic advisor. Six units of COEN 193 or 4 units of COEN 199 may be used as one elective.

Educational Enrichment Electives

An educational enrichment experience selected from one of the following options:

- Eight or more units in a study abroad program that does not duplicate other coursework
- Cooperative education experience with enrollment in COEN 188 and COEN 189
- Admission to one of the department's master's degree programs and completion of at least the first 12 units of that program prior to completion of the undergraduate degree
- Undergraduate research with completion of 6 or more units of COEN 193 (cannot also be used to satisfy a COEN elective)
- Twelve or more units selected in consultation with an academic advisor. The courses may not also be used to satisfy University Core Curriculum requirements, but a minor or second major may be used to complete this option.

Concentrations

Students majoring in computer science and engineering may complete one of four concentrations with certification by the department and on the student's transcript.

Concentration in Information Assurance

The Committee on National Security Systems and the National Security Agency have certified that Santa Clara University's program in Information Assurance has been reviewed by the National Level Information Assurance Subject Matter Experts and has been determined to meet the National Training Standard for Information Systems Security Professionals, NSTISSI No. 4011. Computer science and engineering students completing the Concentration in Information Assurance select their course options as follows:

- Computer Science and Engineering Electives: AMTH 387, COEN 150 or 250, and one of COEN 350, COEN 252, COEN 253, or CSCI 182. Students wishing to use these courses to satisfy the computer science and engineering electives must receive approval from the department chair.
- Educational Enrichment: Either a six-month cooperative education experience in information assurance, preferably with a federal agency or 8 additional units selected from COEN 178, COEN 252, COEN 253, COEN 350, COEN 351, and CSCI 182.
- Senior Design Project: The project should involve security-related activities approved and mentored by designated faculty.

Concentration in Game Development

Computer science and engineering students completing the Concentration in Game Development use COEN 148, 165, and 166 to fulfill their computer science and engineering electives. In addition, either the senior design project or the cooperative education experience must be directly related to the concentration.

Concentration in Web Technologies

The Computer Science and Engineering Concentration in Web Technologies covers (a) the use of mark-up languages, programming and standards to create content; (b) the

infrastructure consisting of servers, Web caches, and content distribution networks to deliver millions of pages to thousands of clients in fractions of a second; and (c) usability—the quality of a system that makes it easy to learn, easy to use, easy to remember, and error tolerant. Computer science and engineering students completing the concentration in Web Technologies use COEN 161, 162, and 163 to fulfill their computer science and engineering electives. In addition, either the senior design project or the cooperative education experience must be directly related to the concentration.

Concentration in Robotics

Computer science and engineering students completing the Concentration in Robotics use COEN 120, 165, and 166 to fulfill their computer science and engineering electives. In addition, either the senior design project or the cooperative education experience must be directly related to the concentration.

Bachelor of Science in Web Design and Engineering

In addition to fulfilling the University Core Curriculum requirements for a Bachelor of Science degree in the engineering school, students majoring in Web design and engineering must complete a minimum of 175 units and the following departmental requirements:

Arts, Humanities, and Social Sciences

- ENGL 138 or ENGL 181 and 182
- ARTS 174, 175, 177
- COMM 2, 12, 30
- SOCI 49
- An advisor-approved discipline-related course satisfying the University Core ethics requirement

Mathematics and Natural Sciences

- MATH 11, 12, 13, 14
- AMTH 108 (or MATH 122)

Engineering

- ENGR 1
- COEN 10 (or demonstrated equivalent programming proficiency), 11, 12 or CSCI 10, 60, 61
- COEN 146, 161, 162, 163
- COEN 194 (or ENGR 194), COEN 195 (or ENGR 195), COEN 196 (or ENGR 196)

Web Design and Engineering Electives

One of COEN 150, 164, 174, and 178

Educational Enrichment Electives

Same as for major in computer science and engineering

REQUIREMENTS FOR THE MINOR IN COMPUTER SCIENCE AND ENGINEERING

Students must fulfill the following requirements for a minor:

- COEN 11, COEN 44, CSCI 10, or OMIS 30
- COEN 12 or CSCI 61
- COEN 20, 21
- Four courses selected from COEN 70 and any upper-division computer engineering lecture courses (i.e., COEN 100–180)
- Work completed to satisfy these requirements must include at least two courses beyond any free electives or other courses required to earn the bachelor's degree in the student's primary major.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Computer Engineering offers a combined degree program leading to the Bachelor of Science and a Master of Science open to students pursuing an undergraduate degree at Santa Clara in Computer Science and Engineering, Web Design and Engineering, or Computer Science. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for the bachelor's degree and typically completes the requirements for a Master of Science within a year of obtaining the bachelor's degree.

Undergraduate students admitted to the program may begin taking graduate courses no earlier than the fall term of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn the master's degree, students must fulfill all the requirements for the degree, including the completion of 45 units of coursework beyond that applied to their bachelor's degree.

No course can be used to satisfy requirements for both the bachelor's degree and the master's degree. Completion of 12 or more units of courses in computer science and engineering taken for the master's degree satisfies the Educational Enrichment requirement of the undergraduate program. Some courses required in the master's degree programs may be replaced by free electives due to similar undergraduate coursework.

COMPUTER ENGINEERING LABORATORIES

The *ASIC Testing Laboratory* supports research conducted by graduate students from the departments of Electrical Engineering and Computer Engineering. Computer-aided testing packages from industry and the public domain are used in projects such as fault modeling and analysis. Design for Test on RTL-level for digital and mixed signal circuits. Design for reliability based on the defect-based testing.

The *Digital Systems Laboratory* (operated jointly with the Department of Electrical Engineering) provides complete facilities for experiments and projects ranging in complexity from a few digital integrated circuits to FPGA-based designs. The laboratory also includes a variety of development systems to support embedded systems and digital signal processing.

The *eHealth Lab* is devoted to solving problems in the biomedical informatics area, more precisely problems related to the manipulation of medical data: format conversion, storage, and communication. The lab contains a 4-node Linux cluster, one Windows and

two Solaris machines, three Mini-ITX EPIA-MII Linux boxes, and two Nortel Accelar routers. Some of the current projects are: HealthLog in a Flash, client/server infrastructure for a clinical trial system, and search mechanisms for medical files.

The *Multimedia Compression Laboratory* supports research in video coding (compression and decompression).

The *Wireless Networks Lab* is shared by Computer Engineering and Electrical Engineering. The lab carries out research projects on the lower three layers of wireless networks. Current projects include: 1) Efficient scheduling of user traffic in cellular networks using smart antennas, 2) Algorithms for turn-key base stations in cellular networks, and 3) Changes to the MAC protocol in 802.11 based ad-hoc networks.

The *Software Engineering Research Laboratory* is a dedicated facility not only for the support of various research activities aimed at developing engineering techniques and tools that help produce and validate high-quality software, but also for developing applications using leading-edge technologies. Specific research activities include the navigation and visualization of large data repositories, profile-driven inlining of code, and program refactoring.

The *Reliable Storage Laboratory* pursues research in reliability of disk drives (with about 35 machines with six disk drives each) belonging to the Internet Archive in San Francisco and high availability scalable distributed data structures with six PCs. It is also used as the Computer Forensics teaching laboratory, housing a cart with 16 laptops and a forensics workstation.

LOWER-DIVISION COURSES

10. Introduction to Programming

Overview of computing. Introduction to program design and implementation: problem definition, functional decomposition, and design of algorithms using media computation. Media computation involves manipulating digital media (pictures and sound) to learn the basic concepts in computation. Programming in the C language: data types, variables, functions, parameters, control constructs, input and output. Program development: editing, compiling, linking, testing, and debugging. Credit is not allowed for more than one introductory class such as COEN 10, COEN 44, CSCI 10, or OMIS 30. (5 units)

11. Advanced Programming

The C Language: structure and style. Types, operators, and expressions. Control flow. Functions. Pointers, arrays, and strings. Structures and dynamic memory allocation. I/O and file processing. Special operators. Recursion and threads. The Unix environment. *Prerequisites: Previous programming experience and/or an introductory programming course, such as COEN 10 with a grade of C- or better, CSCI 10, or OMIS 30.* (5 units)

12. Abstract Data Types and Data Structures

Data abstraction: abstract data types, information hiding, interface specification. Basic data structures: stacks, queues, lists, binary trees, hashing, tables, graphs; implementation of abstract data types in the C language. Internal sorting: review of selection, insertion, and exchange sorts; quicksort, heapsort; recursion. Analysis of run-time behavior of algorithms; Big-O notation. Introduction to classes in C++. *Prerequisite: COEN 11 with a grade of C- or better or COEN 44. Recommended co-requisite: COEN 19 or MATH 51. Credit not allowed for more than one introductory data structures class, such as COEN 12 or CSCI 61.* (5 units)

19. Discrete Mathematics

Relations and operations on sets, orderings, elementary combinatorial analysis, recursion, algebraic structures, logic, and methods of proof. *Also listed as MATH 51.* (4 units)

20. Introduction to Embedded Systems

Introduction to computer organization: CPU, registers, buses, memory, I/O interfaces. Number systems: arithmetic and information representation. Assembly language programming: addressing techniques, arithmetic and logic operations, branching and looping, stack operations, procedure calls, parameter passing, and interrupts. C language programming: pointers, memory management, stack frames, interrupt processing. Multi-threaded programming; pre-emptive and nonpre-emptive kernels; shared resources; scheduling. *Prerequisite: COEN 12 with a grade of C- or better or CSCI 61. Co-requisite: COEN 20L.* (4 units)

20L. Embedded Systems Lab

Laboratory for COEN 20. *Co-requisite: COEN 20.* (1 unit)

21. Introduction to Logic Design

Boolean functions and their minimization. Designing combinational circuits, adders, multipliers, multiplexers, decoders. Noise margin, propagation delay. Bussing. Memory elements: latches and flip-flops; timing; registers; counters. Programmable logic, PLD, and FPGA. Use of industry quality CAD tools for schematic capture and HDL in con-junction with FPGAs. *Also listed as ELEN 21. Co-requisite: COEN 21L.* (4 units)

21L. Logic Design Lab

Laboratory for COEN 21. *Also listed as ELEN 21L. Co-requisite: COEN 21.* (1 unit)

44. Applied Programming

Introduction to computer operating systems. Elements of computer programming in C, including input/output, branching and loops, iterative solutions, function definition and invocation, macros, memory allocation, and top-down design. Programming of elementary mathematical operations. Applications to engineering problems. *Co-requisite: MATH 21.* (5 units)

45. Applied Programming in MATLAB

Introduction to computer operating systems. Elements of computer programming in MATLAB, including input/output, branching and loops, iterative solutions, function definition and invocation, top-down design. Programming of elementary mathematical operations. Applications to engineering problems. *Co-requisite: MATH 21.* (5 units)

70. Formal Specification and Advanced Data Structures

Specification, representation, implementation, and validation of data structures; object-oriented design and programming in a strongly typed functional language (Haskell or ML) with emphasis on reliable reusable software; formal specification of data structures (graphs, sets, bags, tables, environments, trees, expressions, graphics); informal use of specifications to guide implementation and validation of programs; guidelines and practice in designing for and with reuse. *Prerequisites: COEN 19 or MATH 51; COEN 12 with a grade of C- or better or CSCI 61.* (5 units)

UPPER-DIVISION COURSES

120. Real Time Systems

Overview of real-time systems: classification, design issues and description. Finite state machines and statecharts. Robot programming: odometry and the use of sensors. Real-time programming languages, real-time kernels and multi-threaded programming. Unified Modeling Language for the design of real-time applications. Performance analysis. *Prerequisite: COEN 20 with a grade of C- or better. Co-requisite: COEN 120L.* (4 units)

120L. Real Time Systems Laboratory

Laboratory for COEN 120. *Co-requisite: COEN 120.* (1 unit)

122. Computer Architecture

Overview of computer systems. Instruction set architecture. Computer arithmetic. CPU datapath design. CPU control design. Microprogramming techniques. Pipelining. Memory hierarchies and management. Overview of input/output sub-system. Hardware description languages. Laboratory project consists of a design of a CPU. *Prerequisites: COEN 20 or ELEN 33 and COEN 21 or ELEN 21, with a grade of C- or better.* (5 units)

127. Advanced Logic Design

Contemporary design of finite-state machines as system controllers using MSI, PLDS, or FPGA devices. Minimization techniques, performance analysis, and modular system design. HDL simulation and synthesis. *Also listed as ELEN 127. Prerequisite: COEN 21; co-requisites: COEN 127L and ELEN 115.* (4 units)

127L. Advanced Logic Design Lab

Laboratory for COEN 127. Design, construction, and testing of controllers from verbal specs. Use of CAD design tools. *Also listed as ELEN 127L. Co-requisite: COEN 127.* (1 unit)

129. Current Topics in Computer Science and Engineering

Subjects of current interest. May be taken more than once if topics differ. (4 units)

145. Introduction to Parallel and Concurrent Programming

Concept of concurrency, thread programming, thread/process synchronization, synchronization algorithms and language constructs, shared-memory vs. message-passing. Parallel programming concept, performance metrics, overview of multiprocessor architectures (block level), evaluation of parallel algorithms, data parallel programming, shared-memory and message-passing parallel programming. Case studies on application algorithms. *Prerequisite: COEN 177; co-requisite: COEN 179 or CSCI 163. Knowledge of C recommended.* (5 units)

146. Computer Networks

Data Communication: circuit and packet switching, latency and bandwidth, throughput/delay analysis. Application Layer: client/server model, socket programming, Web, e-mail, FTP. Transport Layer: TCP and UDP, flow control, congestion control, sliding window techniques. Network Layer: IP and routing. Data Link Layer: shared channels, media access control protocols, error detection and correction. Mobile computing and wireless networks. Network security. Laboratory consists of projects on software development of network protocols and applications. *Prerequisite: COEN 20 with a grade of C- or better. Recommended co-requisite: AMTH 108.* (5 units)

148. Computer Graphics Systems

Interactive graphic systems. Graphics primitives, line and shape generation. Simple transforming and modeling. Efficiency analysis and modular design. Interactive input techniques. 3D transformations and

viewing, hidden surface removal. Color graphics, animation, real-time display considerations. Parametric surface definition and introduction to shaded-surface algorithms. Offered in alternate years. *Prerequisites: MATH 53; COEN 12 or CSCI 61.* (5 units)

150. Introduction to Information Security

Overview of information assurance. Legal and ethical issues surrounding security and privacy. Malware and secure coding techniques. Authentication and authorization. Other related topics. *Prerequisite: COEN 20 or OMIS 107.* (4 units)

152. Introduction to Computer Forensics

Procedures for identification, preservation, and extraction of electronic evidence. Auditing and investigation of network and host system intrusions, analysis and documentation of information gathered, and preparation of expert testimonial evidence. Forensic tools and resources for system administrators and information system security officers. Ethics, law, policy, and standards concerning digital evidence. (5 units)

161. Web Programming I

Fundamentals of the World Wide Web and its architecture. Designing applications with separation of content and presentation with XHTML and CSS. Introduction to the Document Object Model (DOM). Dynamic documents with Javascript and Ajax (Asynchronous Javascript and XML). Basics of scripting languages (PHP and Perl). Introduction to server-side programming using PHP and Perl. XML technologies (XML Schema, XSLT). Database access through Web. Programming with distributed components and Web services. A comparative study of CGI programming, Java Server Pages and ASP.net. Note: This is a two-part sequence and some of the topics will be covered in COEN 164. *Prerequisite: COEN 12 or CSCI 61.* (5 units)

162. Web Infrastructure

History and overview of World Wide Web technology. Web clients and browsers. State management, session persistence, and cookies. Spiders, bots, and search engines. Web proxies. Web servers and server farms. HTTP and Web protocols. Web caching and content distribution. Load balancing. Web security and firewalls. Web workload and traffic characterization. *Prerequisite: COEN 146.* (4 units)

163. Web Usability

Principles of user-centered design. Principles of human computer interaction. Fundamental theories in cognition and human factors: information processing, perception and representation, constructivist and ecological theories, Gestalt laws of perceptual organization. Usability engineering: user research, user profiling, method for evaluating user interface, usability testing. Prototyping in user interface: process, methods of evaluating and testing. Inclusive design in user interface design: accessibility issues, compliance with section 508 of Rehabilitation Act. *Prerequisite: COEN 12 with a grade of C- or better or CSCI 61.* (5 units)

164. Web Programming II

Continuation of COEN 161, Web Programming I. *Prerequisite: COEN 161.* (5 units)

165. Modeling and Control of Rigid Body Dynamics

Mathematical and physical principles of motion of rigid bodies, including movement, acceleration, inertia and collision. Modeling of rigid body dynamics for three-dimensional graphic simulation; controlling the motion of rigid bodies in robotic applications. *Also listed as ARTS 173. Prerequisites: MATH 21; COEN 012 or CSCI 61.* (4 units)

166. Artificial Intelligence

Philosophical foundations of Artificial Intelligence, problem solving, knowledge and reasoning, neural networks and other learning methods. *Prerequisite: COEN 019 or MATH 52.* (4 units)

171. Principles of Design and Implementation of Programming Languages

High-level programming language concepts and constructs. Costs of use and implementation of the constructs. Issues and tradeoffs in the design and implementation of programming languages. Critical look at several modern high-level programming languages. Offered in alternate years. *Prerequisites: COEN 20; COEN 70 or CSCI 61.* (4 units)

172. Structure and Interpretation of Computer Programs

Techniques used to control complexity in the design of large software systems: design of procedural and data abstractions; design of interfaces that enable composition of well-understood program pieces; invention of new, problem-specific languages for describing a design. *Prerequisites: COEN 19 or MATH 51; COEN 70 or CSCI 61; or permission of the instructor.* (5 units)

173. Logic Programming

Application of logic to problem solving and programming; logic as a language for specifications, programs, databases, and queries; separation of logic and control aspects of programs; bottom-up reasoning (forward from assumptions to conclusions) versus top-down reasoning (backward from goals to subgoals) applied to problem solving and programming; nondeterminism, concurrency, and invertibility in logic programs. Programs written and run in Prolog. *Prerequisites: COEN 70 or CSCI 61 and COEN 19 or MATH 51.* (5 units)

174. Software Engineering

Software development life cycle. Project teams, documentation, and group dynamics. Software cost estimation. Requirements engineering and design. Data modeling, object modeling, and object-oriented analysis. Object-oriented programming and design. Software testing and quality assurance. Software maintenance. *Prerequisites: COEN 12 with a grade of C- or better, or CSCI 61, or permission of instructor and previous use of UNIX workstations.* (5 units)

175. Introduction to Formal Language Theory and Compiler Construction

Introduction to formal language concepts: regular expressions and context-free grammars. Compiler organization and construction. Lexical analysis and implementation of scanners. Top-down and bottom-up parsing and implementation of top-down parsers. An overview of symbol table arrangement, run-time memory allocation, intermediate forms, optimization, and code generation. *Prerequisite: COEN 70 with a grade of C- or better, or CSCI 61.* (5 units)

177. Operating Systems

Introduction to organization of operating systems. Operating system concepts, computer organization model, storage hierarchy, operating system organization, processes management, interprocess communication and synchronization, memory management and virtual memory, I/O subsystems, and file systems. Design, implementation, and performance issues. *Prerequisites: COEN 20 with a grade of C- or better, and either MATH 61 or COEN 12 with a grade of C- or better.* (5 units)

178. Introduction to Database Systems

ER diagrams and the relational data model. Database design techniques based on integrity constraints and normalization. Database security and index structures. SQL and DDL. Transaction processing basics. *Prerequisites: COEN 20; COEN 12 or CSCI 61.* (5 units)

179. Theory of Algorithms

Introduction to techniques of design and analysis of algorithms: asymptotic notations and running times of recursive algorithms; design strategies: brute-force, divide and conquer, decrease and conquer, transform and conquer, dynamic programming, greedy technique. Intractability: P and NP, approximation algorithms. Also listed as CSCI 163. *Prerequisites: MATH 51 or 52, or equivalent, and COEN 12 with a grade of C- or better or CSCI 61 or equivalent. Non-numerical.* (4 units)

180. Introduction to Information Storage

Storage hierarchy. Caching. Design of memory and storage devices, with particular emphasis on magnetic disks. Error correction fundamentals. Disk arrays. Storage interfaces and buses. Network attached storage and storage area networks, interaction of economy and technological innovation. *Also listed as ELEN 180. Prerequisites: COEN 20 and 21; COEN 122 recommended.* (4 units)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. *May not be taken for graduate credit.* (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Approval of department advisor required. Letter grades based on content and quality of report. May be taken twice. *May not be taken for graduate credit.* (2 units)

193. Undergraduate Research

Involves working on a year-long research project with one of the faculty members. Students should register three times in a row for a total of 6 units. Does not substitute for the senior project, which may be a continuation of the research done. Registration requires the faculty member's approval. *Students must have junior or senior standing and a minimum GPA of 3.0.* (2 units)

194. Design Project I

Specification of an engineering project, selected with the mutual agreement of the student and the project advisor. Complete initial design with sufficient detail to estimate the effectiveness of the project. Initial draft of the project report. (2 units)

195. Design Project II

Continued design and construction of the project, system, or device. Initial draft of project report. *Prerequisite: COEN 194.* (2 units)

196. Design Project III

Continued design and construction of the project, system, or device. Formal public presentation of results. Final report. *Prerequisite: COEN 195.* (2 units)

199. Directed Research/Reading

Special problems. By arrangement. (1–5 units)

DEPARTMENT OF ELECTRICAL ENGINEERING

Professor Emeritus: Shu-Park Chan
Professors: Timothy J. Healy *(Thomas J. Bannan Professor),* Samiha Mourad *(William and Janice Terry Professor),* Dragoslav D. Siljak *(Benjamin and Mae Swig Professor),* Sally L. Wood, Cary Y. Yang *(Department Chair),* Aleksandar Zecevic
Associate Professors: Christopher Kitts, Shoba Krishnan, Tokunbo Ogunfunmi, Mahmud Rahman, Yuling Yan
Assistant Professor: Sarah Kate Wilson

Electrical engineering includes the design, construction, and operation of electrical components, circuits, and systems. Electrical engineers are concerned with all phases of the transmission of information such as in radio, television, telephone systems, fiber optics, wireless communication, satellite communication, electric power, advancing integrated circuit design, test, and implementation. Information processing and storage equipment, computers and networks used by business, industry, and government are included in their major area of interest. Laboratories are an important part of most undergraduate courses in the electrical engineering program. Use of appropriate laboratory equipment, design tools, and components demonstrates fundamental concepts of the courses and acquaints students with methods and tools they may use after graduation. The program is supported by the facilities of the Engineering Design Center and the University's Information Technology Center. The department supports 10 major teaching and research laboratories, three additional laboratories used only for teaching, and a laboratory dedicated to the support of senior design projects. The three teaching laboratories cover the fields of electric circuits, electronic circuits, and logic design.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the University Core Curriculum for the Bachelor of Science degree, students majoring in electrical engineering must complete a minimum of 190 units and the following department requirements:

English

- ENGL 181, 182

Mathematics and Natural Science

- MATH 11, 12, 13, 21
- AMTH 106 (or MATH 22) and AMTH 108 (or MATH 122)
- MATH 53 or CSCI 166 or AMTH 118
- CHEM 11 and (CHEM 12 or BIOL 21)
- PHYS 31, 32, 32L, 33, 33L, 34

Engineering

- ENGR 1
- CENG 41

- COEN 12, 44
- MECH 121
- ELEN 21, 21L, 33, 50, 100, 104, 110, 115, 151, 192, 194, 195, 196

Technical Electives

Four undergraduate-equivalent courses selected from the following options:

- Upper-division electrical engineering elective courses
- COEN 120, 122, 146
- First-year graduate level electrical engineering coursework approved by the advisor (2-unit graduate courses count as one-half of an undergraduate course)

At least one course must be selected from each of the three emphasis areas:

- Design Team Emphasis: ELEN 116, 117, 123, 127, 143, 144, 145, 152, 153, 156, 161, 162, 164
- Advanced Mathematics Emphasis: ELEN 112, 118, 130, 131, 133, 134, 141, 144, 160
- Computer Programming Design Emphasis: ELEN 112, 118, 127, 131, 133, 141, 143, 180

Professional Development

A professional development experience selected from one of the following options:

- Four or more units in a study abroad program that does not duplicate other coursework
- Cooperative education experience with enrollment in ELEN 188 and ELEN 189
- Preparation for graduate study in electrical engineering with completion of 4 or more units of upper-division or graduate level courses
- Completion of an approved minor in any field of engineering or science
- Peer education experience

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in electrical engineering:

- ELEN 21, 21L, 50, 115
- Two courses selected from ELEN 100, 104, 110, and 151
- Three upper-division ELEN lecture courses (ELEN 100-level courses, excluding ELEN 188, 189, 192, 194, 195, and 196)
- Work completed to satisfy these requirements must include at least two courses beyond any free electives or other courses required to earn the bachelor's degree in the student's primary major.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Electrical Engineering offers a combined degree program leading to the Bachelor of Science and a Master of Science open to electrical engineering majors with an approved grade point average in electrical engineering, mathematics, and physics courses. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for the bachelor's degree and typically completes the requirements for a Master of Science in Electrical Engineering within a year of obtaining the bachelor's degree.

Undergraduate students admitted to the combined degree program are required to enroll in the program between February of their junior year and December of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn the master's degree, students must fulfill all the requirements for the degree, including the completion of 45 units of coursework beyond that applied to their bachelor's degree.

No course can be used to satisfy requirements for both the bachelor's degree and the master's degree. Completion of 10 or more units of coursework in electrical engineering taken for the master's degree satisfies the Professional Development requirement of the undergraduate program. The program of studies for the master's degree may include up to 20 units of elective coursework from ELEN 112, 116, 117, 118, 127, 130, 133, 134, 141, 143, 144, 152, 153, 156, 160, 161, 162, 164, 200, and above. These undergraduate units can count toward a master's degree only if a grade of B or better is earned. Students who do not complete the combined degree program within six years of entering the University will automatically be transferred to the regular master's degree program. Although six years is the maximal timeframe for completing the combined degree, full-time students enrolling in February of their junior year normally complete both degrees within five years.

ELECTRICAL ENGINEERING LABORATORIES

The *ASIC Testing Laboratory* supports research conducted by graduate students from the departments of Electrical Engineering and Computer Engineering. Computer-aided testing packages from industry and the public domain are used in projects such as fault modeling and analysis. Projects include design for test on RTL-level for digital and mixed signal circuits, and design for reliability based on the defect-based testing.

The *Communications and Microwave Laboratory* provides a full range of modern measurement capability from 0–22 GHz, including a number of automatic network analyzers and modern spectrum analyzers. It also has extensive computer-aided design and simulation capability, based largely on modern commercial software running on workstations. Interconnection of hardware measurements and computer simulation is stressed.

The *Digital Systems Laboratory* (operated jointly with the Department of Computer Engineering) provides complete facilities for experiments and projects ranging in complexity from a few digital integrated circuits to FPGA-based designs. The laboratory also includes a variety of development systems to support embedded systems and digital signal processing.

The *Electronic Devices Laboratory* is dedicated to teaching and research topics on electronic devices, materials, and their manufacturing technologies. Current research topics include impact of process variations on the analysis and optimization of VSLI circuits, photovoltaic devices, and MOS device modeling including quantum mechanical interface charge distribution effects.

The *Intelligent Control Laboratory* provides an experimental environment for students in the area of control and system engineering. It includes a computer-controlled robotic system, several servo-experimenters, and a torsional mechanical control system. The equipment provides students with a wide range of qualitative and quantitative experiments for learning the utility and versatility of feedback in computer-controlled systems.

The *Nanoelectronics Laboratory* provides teaching and research facilities for modeling, simulation, and characterization of devices and circuits in the nanoscale. Ongoing research topics include silicon heterostructures, thin dielectrics, high-frequency device and circuit parameter extraction, carbon nanostructures used as electrical interconnect and thermal interface materials, and compact modeling of transistors and interconnects for large-scale circuit simulation. This laboratory is part of the campus-wide *Center for Nanostructures,* established to conduct, promote, and nurture nanoscale science and technology interdisciplinary research and education activities at the University, and to position the University as a national center of innovation in nanoscience education and nanostructures research.

The *Image and Video Processing Laboratory* supports graduate student research on algorithms and implementations for image analysis, image reconstruction and super-resolution, and stereo imaging. Laboratory equipment includes cameras for image acquisition, computational resources, and FPGAs for real-time testing.

The *Multimedia Education Laboratory* (operated jointly with the Department of Computer Engineering) is dedicated to the development and delivery of multimedia educational resources and to the development of tools to create and present these resources. The laboratory is equipped with eight UNIX workstations with high-speed ATM networking.

The *Robotics Systems Laboratory* is an interdisciplinary laboratory specializing in the design, control, and teleoperation of highly capable robotics systems for scientific discovery, technology validation, and engineering education. Laboratory students develop and operate systems that include spacecraft, underwater robots, aircraft, and land rovers. These projects serve as ideal test beds for learning and conducting research in mechatronic system design, guidance and navigation, command and control systems, and human-machine interfaces.

The *Signal Processing Research Laboratory (SPRL)* conducts research into theoretical algorithm development in adaptive/nonlinear signal processing, speech/audio/video signal processing and their applications in communications, biotech, Voice-over-IP networking and related areas. The lab supports student research in algorithms and real-time implementations on digital signal processors (DSPs) and field programmable gate arrays (FPGAs). Laboratory equipment includes UNIX workstations, PCs, digital oscilloscopes, video cameras, wireless LAN networking eequipment, DSP boards, and FPGA boards.

LOWER-DIVISION COURSES

21. Introduction to Logic Design

Boolean functions and their minimization. Designing combinational circuits, adders, multipliers, multiplexers, decoders. Noise margin, propagation delay. Bussing. Memory elements: latches and flip-flops; timing; registers; counters. Programmable logic, PLD, and FPGA. Use of industry quality CAD tools for schematic capture and HDL in conjunction with FPGAs. *Also listed as COEN 21. Co-requisite: ELEN 21L.* (4 units)

21L. Logic Design Lab

Laboratory for ELEN 21. *Also listed as COEN 21L. Co-requisite: ELEN 21.* (1 unit)

33. Digital Systems Architecture

Overview of processor architectures for general purpose processors, signal processing microprocessors, and FPGA implementations of DSP; data representation in fixed point, floating point, m law and A law; instruction sets; assembly and machine language programming; real-time audio data acquisition and output; introduction to sample data systems. Analog to digital converters and digital to analog converters. *Prerequisites: ELEN 21 and COEN 44. Co-requisite: COEN 12.* (5 units)

50. Electric Circuits I

Physical basis and mathematical models of circuit components and energy sources. Circuit theorems and methods of analysis are applied to DC and AC circuits. Laboratory. *Prerequisite: PHYS 33.* (5 units)

UPPER-DIVISION COURSES

100. Electric Circuits II

Continuation of ELEN 50. Sinusoidal steady state and phasors, transformers, resonance, Laplace analysis, transfer functions. Frequency response analysis. Bode diagrams. Switching circuits. Laboratory. *Prerequisites: AMTH 106 and either ELEN 50 or PHYS 70.* (5 units)

104. Electromagnetics I

Vector analysis and vector calculus. The laws of Coulomb, Lorentz, Faraday, and Gauss. Dielectric and magnetic materials. Energy in electric and magnetic fields. Capacitance and inductance. Maxwell's equations. Wave equation. Poynting vector. Wave propagation and reflection. Transmission lines. Radiation. *Prerequisites: PHYS 33 and ELEN 100.* (5 units)

105. Electromagnetics II

In-depth study of several areas of electromagnetics such as device parasitics, matching circuits, Poisson equation solutions, antennas and antenna arrays, wave-particle duality, and transients in transmission lines. *Prerequisite: ELEN 104.* (5 units)

110. Linear Systems

Signals and system modeling. Laplace transform. Transfer function. Convolution. Discrete systems and Z-transform. Frequency analysis. Fourier series and transform. Filtering. State-Space models. MATLAB laboratory/problem sessions. *Prerequisite: ELEN 100.* (5 units)

112. Modern Network Synthesis and Design

Approximation and synthesis of active networks. Filter design using positive and negative feedback biquads. Sensitivity analysis. Fundamentals of passive network synthesis. Design project. *Prerequisite: ELEN 110.* (5 units)

115. Electronic Circuits I

Study of basic principles of operation, terminal characteristics, and equivalent circuit

models for diodes and transistors. Analysis and design of diode circuits, transistor amplifiers, and inverter circuits. *Prerequisite: ELEN 50.* (5 units)

116. Electronic Circuits II

Design and analysis of multi-stage analog amplifiers. Study of differential amplifiers, current mirrors and gain stages. Frequency response of cascaded amplifiers and gain-bandwidth considerations. Concepts of feedback, stability and frequency compensation. Design of output stages and power amplifiers. *Prerequisite: ELEN 115.* (5 units)

117. Electronic Circuits III

Design and analysis of BJT and MOSFET analog ICs. Study of analog circuits such as comparators, sample/hold amplifiers, and continuous time switched capacitor filters. Architecture and design of analog to digital and digital to analog converters. Reference and biasing circuits. Study of noise and distortion in analog ICs. *Prerequisite: ELEN 116.* (5 units)

118. Fundamentals of Computer-Aided Circuit Simulation

Introduction to algorithms and principles used in circuit simulation packages (such as SPICE). Formulation of equations for linear and nonlinear circuits. Detailed study of the three different types of circuit analysis (AC, DC, and transient). Discussion of computational aspects, including sparse matrices, Newton's method, numerical integration, and parallel computing. Applications to electronic circuits, active filters, and CMOS digital circuits. Course includes a number of design projects in which simulation software is written in MATLAB and verified using SPICE. *Prerequisites: ELEN 21, 100, and 115.* (5 units)

119. Current Topics in Electrical Engineering

Subjects of current interest. May be taken more than once if topics differ. (4 units)

123. Mechatronics

Introduction to behavior, design, and integration of electromechanical components and systems. Review of appropriate electronic components/circuitry, mechanism configurations, and programming constructs. Use and integration of transducers, microcontrollers, and actuators. *Also listed as MECH 143. Prerequisite. ELEN 50.* (5 units)

127. Advanced Logic Design

Contemporary design of finite-state machines as system controllers using MSI, PLDs, or FPGA devices. Minimization techniques, performance analysis, and modular system design. HDL simulation and synthesis. *Also listed as COEN 127. Prerequisite: ELEN 21. Co-requisites: ELEN 127L and ELEN 115.* (4 units)

127L. Advanced Logic Design Lab

Laboratory for ELEN 127. Design, construction, and testing of controllers from verbal specs. Use of CAD design tools. *Also listed as COEN 127L. Co-requisite: ELEN 127.* (1 unit)

130. Control Systems

Applications of control systems in engineering. Principle of feedback. Performance specifications: transient and steady-state response. Stability. Design of control systems by frequency and root-locus methods. Computer-controlled systems. State-variable feedback design. Problem sessions. *Prerequisite: ELEN 110.* (5 units)

131. Introduction to Robotics

Overview of robotics: control, AI, and computer vision. Components and structure of robots. Kinematics and dynamics of robot manipulators. Servo-control design, PID control. Trajectory planning, obstacle avoidance. Sensing and vision. Robot intelligence and task planning. Laboratory. *Prerequisite: ELEN 110.* (5 units)

133. Digital Signal Processing

Discrete signals and systems. Difference equations. Convolution summation. Z-transform, transfer function, system response, stability. Digital filter design and implementation. Frequency domain analysis. Discrete Fourier transform and FFT. Audio and video examples. Laboratory for real-time processing. *Prerequisite: ELEN 110 or both ELEN 50 and COEN 19.* (5 units)

134. Applications of Signal Processing

Current applications of signal processing. *Prerequisite: ELEN 133.* (5 units)

139. Special Topics in Signals and Systems

Subjects of current interest. May be taken more than once if topics differ. (4 units)

141. Communication Systems

Signal description; Fourier transforms; filtering; noise description; linear, exponential, and pulse modulation and demodulation. Amplitude and frequency modulation, phase lock loops. Laboratory. *Prerequisites: ELEN 110 and AMTH 108.* (5 units)

143. Introduction to Digital Communications

Matched filter receivers. Digital constellations including BPSK, QPSK, and QAM. Nyquist pulses including raised cosine signals. *Prerequisite: ELEN 141.* (4 units)

144. RF and Microwave Components

The fundamental characteristics of passive and active electrical components. Parasitics, models, and measurements. Modeling of circuit interconnect wiring as transmission lines. Study of crosstalk and other noises in high-speed digital circuits. Use of state-of-the-art CAD tools. *Prerequisite: ELEN 105.* (5 units)

151. Semiconductor Devices

Properties of materials, crystal structure, and band structure of solids. Carrier statistics and transport; p-n junction statics, I-V characteristics, equivalent circuits, and switching response. Metal-semiconductor contacts, Schottky diodes. MOS field-effect transistors, bipolar junction transistors. Laboratory. *Prerequisite: ELEN 104.* (5 units)

152. Semiconductor Devices and Technology

Continuation of MOS field-effect transistors, bipolar junction transistors, heterjunctions. Principles of silicon IC fabrication processes. Bulk and expitaxial crystal growth, thermal oxidation, diffusion, ion implantation. Process simulation for basic devices. *Prerequisite: ELEN 151.* (5 units)

153. Digital Integrated Circuit Design

Introduction to VLSI design and methodology. Analysis of CMOS integrated circuits. Circuit modeling and performance evaluation supported by simulation (SPICE). Ratioed, switch, and dynamic logic families; combinational and sequential circuits. Fully-custom and semi-custom design. Physical design: placement and routing. Use of state-of-the-art CAD tools. *Prerequisites: ELEN/COEN 21 and ELEN 115.* (5 units)

156. Introduction to Nanotechnology

Introduction to the field of nanoscience and nanotechnology. Properties of nanomaterials and devices. Nanoelectronics: from silicon and beyond. Measurements of nanosystems. Applications and implications. Laboratory experience is an integral part of the course. This course is part of the Electrical Engineering program and should be suitable for juniors and seniors in engineering and first-year graduate students. *Also listed as MECH 156. Prerequisite: PHYS 33.* (5 units)

160. Chaos Theory, Metamathematics and the Limits of Science: An Engineering Perspective on Religion

Limitations of science are examined in the framework of nonlinear system theory and metamathematics. Strange attractors, bifurcations, and chaos are studied in some detail. Additional topics include an introduction to formal systems and an overview of Godel's theorems. The mathematical background developed in the course is used as a basis for exploring the relationship between science, aesthetics, and religion. Particular emphasis is placed on the rationality of faith. *Prerequisite: AMTH 106 (or an equivalent course in differential equations), and a basic familiarity with Matlab.* (5 units)

161. Biosensors and Bioinstrumentation

Transducers and biosensors from traditional to nanotechnology; bioelectronics and measurement system design; interface between biological system and instrumentation; data analysis; clinical safety. Laboratory component will include traditional clinical measurements and design and test of a measurement system with appropriate transducers. No human or animal subjects will be used. *Also listed as BIOE 161. Prerequisites: BIO 21, PHYS 33, ELEN 21, ELEN 115.* (5 units)

162. BioSignals and Processing

Origin and characteristics of bioelectric, bio-optical, and bioacoustic signals generated from biological systems. Behavior and response of biological systems to stimulation. Acquisition and interpretation of signals. Signal processing methods include FFT spectral analysis and time-frequency analysis. Laboratory component will include modeling of signal generation and analysis of signals such as electrocardiogram (ECG), electroglottogram (EGG), and vocal sound pressure waveforms. *Also listed as BIOE 162. Prerequisites: BIO 24, PHYS 33, ELEN 50.* (5 units)

164. Introduction to Power Electronics

Development of models utilizing semiconductor materials used in high-current and/or high-voltage applications. Models include DC to DC converters, AC to DC converters, and DC to AC inverters. Analysis of power amplifiers. SPICE implementations of models. *Prerequisite: ELEN 115.* (5 units)

180. Introduction to Information Storage

Storage techniques and mass storage devices. Use of memory in computer systems. Design of semiconductor, magnetic and optical (disk drives), and magnetic tape memories. Storage controllers, computer interfaces, system software interfaces. Emphasis on current mass storage devices and interfaces: SCSI, IPI, ST506, ESDI. *Also listed as COEN 180. Prerequisites: ELEN 21, 33, and COEN 8 or 44. ELEN 122 recommended.* (4 units)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. May be taken twice. *May not be taken for graduate credit.* (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Approval of department co-op advisor required. Letter grades based on content and presentation quality of report. May be taken twice. *May not be taken for graduate credit.* (2 units)

192. Introduction to Senior Design Project

Junior preparation for senior project. An introduction to project requirements and participation in the coordination of the senior conference. Tentative project selection. (2 units)

194. Design Project I

Specification of an engineering project, selected with the mutual agreement of the student and the project advisor. Complete initial design with sufficient detail to estimate the effectiveness of the project. Initial draft of the project report. *Co-requisite: ENGL 181.* (2 units)

195. Design Project II

Continued design, construction, and testing of the project, system, or device. Second draft of project report. *Prerequisite: ELEN 194.* (2 units)

196. Design Project III

Continued design, construction, and testing of the project, system, or device. Formal public presentation of results. Final report. *Prerequisite: ELEN 195.* (1 unit)

199. Directed Research/Reading

Investigation of an approved engineering problem and preparation of a suitable project report. Open to electrical engineering majors only. (1–6 units)

GENERAL ENGINEERING

Associate Dean for Undergraduate Studies: Ruth E. Davis

The School of Engineering, under the direction of the Office of the Dean, offers the Bachelor of Science degree with a major in general engineering and a minor in general engineering. The bachelor's degree in general engineering is designed to provide students with a less specialized, technical degree with concentrations designed to meet the needs of the individual student. The general engineering degree allows students to pursue an engineering degree while preparing for work or graduate study in fields such as law, medicine, business, or education. The bioengineering concentration focuses on the application of electrical, chemical, mechanical, and other engineering principles to understand, modify, or control biological systems and educates students to solve problems at the interface of engineering and the life sciences. The goal of the multidisciplinary bioengineering program is to educate students to solve problems at the interface of engineering and the life sciences. Career paths for students with a concentration in bioengineering include the medical-device and biotechnology industries, biomedical research, and graduate study in bioengineering, science, or medicine.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the University Core Curriculum requirements for the Bachelor of Science degree, students majoring in engineering must complete the minimum number of units and the specified requirements for their concentration.

Concentration in Bioengineering

Students majoring in engineering with a concentration in bioengineering must complete a minimum of 191 units and the following requirements:

English

- ENGL 181, 182

Bioethics

- One course selected from PHIL 7, ENGR 19, or BIOL 171

Biology-Chemistry-Physics Core

- BIOL 21, 24, 25
- CHEM 11, 12, 13, 31, 32
- PHYS 31, 32, 33

Mathematics Core

- MATH 11, 12, 13, 14
- AMTH 106

Engineering Core

- ENGR 1
- BIOE 10
- ELEN 21 or COEN 21, ELEN 50, ELEN 115
- COEN 44 or 45
- MECH 15

Senior Design Project

- BIOE 194, 195, 196 (or ENGR 194, 195, 196)
- Six units in an interdisciplinary design project

In addition, students must meet the requirements of one of the following two specializations:

Specialization in Bio-molecular or Biomedical Devices and Instrumentation

Bio-molecular Specialization

- BIOL 174
- BIOE 161, 162
- BIOE 154, 156
- Three courses from BIOL 122, BIOL 124, BIOL 176, BIOL 177, BIOL 178, CHEM 111, CHEM 141, CHEM 151, CHEM 152

Biomedical Devices and Instrumentation Specialization

- BIOL 124
- BIOE 161, 162
- BIOE 154, 156
- Three courses from CENG 123, ELEN 116, (ELEN 123 or MECH 143), ELEN 130, ELEN 133, ELEN 156, ELEN 160, MECH 121, MECH 122, MECH 123, EMGT 307

Other Concentrations in General Engineering

Students majoring in engineering must complete a minimum of 189 units and the following requirements:

English

- ENGL 181, 182

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- MATH 22 or AMTH 106
- One upper-division mathematics elective
- CHEM 11
- PHYS 31, 32, 33
- MECH 15

Engineering

- ENGR 1
- ENGR 2 or ENGR 110
- CENG 41, 43
- COEN 10 (or other approved programming course), 21, 21L
- ELEN 50, 115
- MECH 10, 11, 121

Design Sequence from one of the following options:

- BIOE 194, 195, 196
- COEN 194, 195, 196
- ELEN 194, 195, 196
- CENG 192A, 192B, 193, 194
- MECH 194, 195, 196
- ENGR 194, 195, 196

Electives

Thirty-six upper-division units defining a coherent concentration, selected in consultation with an academic advisor.

REQUIREMENTS FOR THE MINOR IN GENERAL ENGINEERING

Students must fulfill the following requirements for a minor in general engineering:

- One course selected from COEN 10, COEN 11, COEN 44, COEN 45, CENG 15, or other approved programming course
- CENG 41
- ELEN 50
- MECH 10, 121
- Two courses selected from CENG 10, CENG 43, COEN 12, (COEN 21/21L or ELEN21/21L), MECH 11, MECH 15, MECH 140
- A two-course sequence selected from CENG 115 and CENG 118, CENG 121 and CENG 143, COEN 70 and any upper-division COEN course, ELEN 100 and ELEN 110, MECH 122 and MECH 132, MECH 123 and MECH 131

LOWER-DIVISION COURSES: GENERAL ENGINEERING

1. Introduction to Engineering

Introduction to the different engineering disciplines. Interdisciplinary aspects of engineering. Engineering professionalism, ethics, and civic engagement. (1 unit)

2. Community Engineering Applications

Students participate in practical engineering projects that are designed to contribute to the local or global community. *Prerequisite: ENGR 1.* (1 unit)

15. Environmental Quality Engineering

Behavior of chemicals in the environment. Environmental protection strategies. Environmental impact assessment. Risk analysis and economic considerations. Discussion of local, regional, and global environmental problems and alternative solutions. For non-engineering majors. *Prerequisite: MATH 6 or equivalent.* (4 units)

19. Ethics in Technology

Formal inquiry into normative ethics. Special attention to general ethical principles and the application of these principles to current moral issues arising in science and technology. Topics may include ethical dilemmas in the engineering, biology, chemistry, pharmaceutical, computer, military, energy, environmental, and agricultural disciplines. (4 units)

20. Topics in Robotics

Participate in a project-based, hands-on engineering project in a team-based environment. Gain exposure to sensing, actuation, and control techniques and components in the process of developing a robotic system or subsystem. *Prerequisite: Instructor permission required.* (1 unit)

90. Solar Decathlon Workshop

Workshop to develop aspects of the solar decathlon entry. May include design, communication, construction, research, analysis, planning, documentation, fundraising, and other activities. Students will meet together to share information, brainstorm, collaborate, and make decisions, and will also work independently or in small teams in focused areas. (1 unit)

98. Independent Study

Independent study of an approved engineering problem and preparation of a suitable project report. (1–4 units)

UPPER-DIVISION COURSES: GENERAL ENGINEERING

110. Engineering Projects for the Community

Students participate in engineering projects of interest to the local or international community. May be repeated for additional credit. (1–2 units)

180. Marine Operations

Introduction to the design, operation, deployment, piloting, and safety issues involving the use of underwater robots. *Prerequisite: Instructor permission required.* (1 unit)

181. Advanced Marine Operations

Technical operation, maintenance, and advanced piloting of underwater robots. Crew management. Operational and safety procedures. *Prerequisite: Instructor permission required.* (1 unit)

199. Directed Research/Reading

Investigation of an approved engineering problem and preparation of a suitable project report. Conferences with faculty advisor are required. *Prerequisite: Instructor approval.* (1–5 units)

LOWER-DIVISION COURSES: BIOENGINEERING

10. Introduction to Bioengineering

An introduction to the central topics of bioengineering, including the application of engineering methods and science to problems in biology and medicine, and the integration of engineering and biology. Current issues and opportunities in the field will be discussed. Course may include lectures, class discussions, guest lectures, field trips, short lab exercises, and team projects. Open to all engineering and science majors. (4 units)

UPPER-DIVISION COURSES: BIOENGINEERING

154. Introduction to Biomechanics

Overview of basic human anatomy, physiology, and anthropometry. Applications of mechanical engineering to the analysis of human motion, function, and injury. Review of issues related to designing devices for use in, or around, the human body including safety, biocompatibility, ethics, and FDA regulations. Offered every other year. *Also listed as MECH 254.* (4 units)

156. Introduction to Biomaterials

Introduction to each class of biomaterial. Exploration of research, commercial, and regulatory literature. Written and oral reports by students on a selected application requiring one or more biomaterials. *Also listed as MECH 256.* (2 units)

161. Biosensors and Bioinstrumentation

Transducers and biosensors from traditional to nanotechnology; bioelectronics and measurement system design; interface between biological system and instrumentation; data analysis; clinical safety. Laboratory component will include traditional clinical measurements and design and test of a measurement system with appropriate transducers. No human or animal subjects will be used. *Also listed as ELEN 161. Prerequisites: BIOE 10, BIOL 21, PHYS 33, ELEN 21, ELEN 50.* (5 units)

162. BioSignals and Processing

Origin and characteristics of bioelectric, biooptical, and bioacoustic signals generated from biological systems. Behavior and re-

sponse of biological systems to stimulation. Acquisition and interpretation of signals. Signal processing methods include FFT spectral analysis and time-frequency analysis. Laboratory component will include modeling of signal generation and analysis of signals such as electrocardiogram (ECG), electromyogram (EMG), and vocal sound pressure waveforms. *Also listed as ELEN 162. Prerequisites: BIOE 10, PHYS 33, ELEN 50.* (5 units)

190. Bioengineering Capstone

Introduction to the design process as applied to bioengineering projects. Integration of topics in early courses in biology, chemistry, and engineering. Team projects leading to formal design reports. Discussion of senior design projects. *Prerequisite: Junior standing.* (4 units)

194. Design Project I

Specification of an engineering project, selected with the mutual agreement of the student and the project advisor. Complete initial design with sufficient detail to estimate the effectiveness of the project. Initial draft of the project report. (2 units)

195. Design Project II

Continued design and construction of the project, system, or device. Second draft of project report. *Prerequisite: BIOE 194.* (2 units)

196. Design Project III

Continued design and construction of the project, system, or device. Final report. *Prerequisite: BIOE 195.* (2 units)

DEPARTMENT OF MECHANICAL ENGINEERING

Professors Emeriti: Mark Ardema, Eugene J. Fisher, R. Ian Murray, Richard K. Pefley, Michel A. Saad
Professors: M. Godfrey Mungal, Terry E. Shoup
Associate Professors: Drazen Fabris, Timothy K. Hight *(Department Chair),* Christopher Kitts
Assistant Professors: Mohammad Ayoubi, Wendelin Wright *(Clare Booth Luce Professor)*

Mechanical engineering includes all aspects of design, development, control, and manufacture of mechanical systems and energy conversion systems. Mechanical engineering is essential to the proper design and manufacture of nearly every physical product in our modern world. As such, mechanical engineers are a fundamental resource for most industries, and they work in interdisciplinary environments. Mechanical engineers must have the ability to see broad perspectives across disciplines and industries and yet solve very local and specialized problems. The undergraduate curriculum addresses the education and training of mechanical engineering students and concentrates on two technical areas: (1) design and analysis of thermofluid systems for effective use of energy; and (2) design, analysis, and control of mechanical systems including the study of materials used in engineering. Educational efforts are channeled to expand the skills of prospective engineers not only in understanding fundamentals but also in developing competence in analyzing engineering systems.

REQUIREMENTS FOR THE MAJOR

In addition to fulfilling the University Core Curriculum requirements for the Bachelor of Science degree, students majoring in mechanical engineering must complete a minimum of 192 units and the following department requirements:

English

- ENGL 181, 182

Mathematics and Natural Science

- MATH 11, 12, 13, 14
- AMTH 106 or MATH 22
- AMTH 118
- CHEM 11
- PHYS 31, 32, 33
- MECH 15
- MECH 102 (required for students receiving any MATH or AMTH grade below a "B") or approved mathematics or natural science elective

Engineering

- ENGR 1
- CENG 41, 43
- COEN 44 or 45
- ELEN 50
- MECH 10, 11, 114, 114L, 115, 121, 122, 123, 125, 140, 141, 142, 160, 194, 195, 196

Technical Electives

Eight units of technical electives from approved upper-division or graduate engineering classes, with a maximum of 4 units from cooperative education.

REQUIREMENTS FOR THE MINOR

Students must fulfill the following requirements for a minor in mechanical engineering:

- COEN 44, CENG 41, ELEN 50, MECH 10
- Two courses selected from MECH 11, MECH 15, CENG 43, and MECH 140
- MECH 121
- One two-course technical sequence: MECH 122 and 132, MECH 122 and 123, MECH 114 and 115, or MECH 141 and 142

Please be aware of the prerequisites for the technical sequence courses, as this may influence your choice of lower-division courses.

COMBINED BACHELOR OF SCIENCE AND MASTER OF SCIENCE PROGRAM

The Department of Mechanical Engineering offers a combined degree program leading to the Bachelor of Science and a Master of Science open to mechanical engineering majors. Under the combined degree program, an undergraduate student begins taking courses required for a master's degree before completing the requirements for the bachelor's degree and

typically completes the requirements for a Master of Science in Mechanical Engineering at the end of the fifth year.

Undergraduate students admitted to the combined degree program begin taking graduate classes during their senior year. They are required to enroll in the program between February of their junior year and December of their senior year. Students in this program will receive their bachelor's degree after satisfying the standard undergraduate degree requirements. To earn the master's degree, students must fulfill all the requirements for the degree, including the completion of 45 units of coursework beyond that applied to their bachelor's degree and completion of the master's thesis. No course can be used to satisfy requirements for both the bachelor's degree and the master's degree.

MECHANICAL ENGINEERING LABORATORIES

The *Nanomechanics Lab* houses a nanoindenter, a mechanical test instrument with nanometer displacement resolution and micro-Newton load resolution. In addition to measuring mechanical properties such as hardness and elastic modulus with high spatial resolution, the tip of the nanoindenter may be used to perform mechanical testing on MEMS devices.

The *CAM and Prototyping Lab* consists of two machine shops and a prototyping area. One machine shop is dedicated to student use for design and research projects. The second is a teaching lab used for undergraduate and graduate instruction. Both are equipped with modern machine tools, such as lathes and milling machines. The teaching lab also houses both 2-axis and 3-axis Computer Numerically Controlled vertical milling machines and a CNC lathe. Commercial CAM software is available for ease of programming. The prototyping area is equipped with a Stratasys FDM 3000 rapid prototyping system that utilizes fused deposition modeling to create plastic prototypes from CAD generated models. Also available are a Cyberware laser scanner and a Microscribe touch scanner for capturing 3D data points to facilitate reverse engineering or data acquisition from existing components.

The *Engine Lab* contains a variety of internal combustion engines installed on dynamometer stands that can be used for studies of diesel and spark-ignition engines. The facilities include a chassis dynamometer and instrumentation for evaluating engine performance, measuring exhaust gas emissions, and measuring noise. Studies can be conducted using a variety of fuels.

The *Fluid Dynamics/Thermal Science Lab* contains equipment to illustrate the principles of fluid flow and heat transfer and to familiarize students with hydraulic machines, refrigeration cycles, and their instrumentation. The lab also contains a subsonic wind tunnel equipped with an axial flow fan with adjustable pitch blades to study aerodynamics. Research tools include modern nonintrusive flow measurement systems.

The *Instrumentation Lab* contains six computer stations equipped with state-of-the-art, PC-based data acquisition hardware and software systems. A variety of transducers and test experiments for making mechanical, thermal, and fluid measurements are part of this lab.

The *Materials Laboratory* contains equipment for metallography and optical examination of the microstructure of materials as well as instruments for mechanical properties characterization including tension, compression, hardness, and impact testing. The Materials Laboratory also has a tube furnace for heat treating and a specialized bell-jar furnace for pour casting and suction casting of metallic glasses and novel alloy compositions.

The *Robotic Systems Laboratory* is an interdisciplinary laboratory specializing in the design, control, and teleoperation of highly capable robotic systems for scientific discovery, technology validation, and engineering education. Laboratory students develop and operate systems that include spacecraft, underwater robots, aircraft, and land rovers. These projects serve as

ideal testbeds for learning and conducting research in mechatronic system design, guidance and navigation, command and control systems, and human-machine interfaces.

The *Vibrations and Control Systems Lab* is equipped with two flexible test systems. One is capable of single or multi DOF modes, free or forced motion, and adjustable damping. The other is an inverted pendulum. Both systems can be controlled by a wide variety of control algorithms and are fully computer connected for data acquisition and control.

LOWER-DIVISION COURSES

10. Graphical Communication in Design

Introduction to the design process and graphical communications tools used by engineers. Documentation of design through freehand sketching and engineering drawings. Basic descriptive geometry. Computer-aided design as a design tool. Conceptual design projects presented in poster format. Computer Laboratory. (5 units)

11. Materials and Manufacturing Processes

Manufacturing processes and their use in the production of mechanical components from metals and plastics. *Prerequisites: MECH 10 and 15.* (4 units)

15. Introduction to Materials Science

Physical basis of the electrical, mechanical, optical, and thermal behavior of solids. Relations between atomic structure and physical properties. Laboratory. *Prerequisite: CHEM 11.* (5 units)

UPPER-DIVISION COURSES

102. Introduction to Mathematical Methods in Mechanical Engineering

The application of mathematical methods to the solution of practical engineering problems. A review of fundamental mathematical methods and calculus of a single variable, multivariable calculus, ordinary differential equations, numerical methods, and basics of linear algebra. (4 units)

114. Machine Design I

Analysis and design of mechanical systems for safe operation. Stress and deflection analysis. Failure theories for static loading and fatigue failure criteria. Team design projects begun. Formal conceptual design reports required. *Prerequisites: MECH 15, CENG 41, and CENG 43.* (4 units)

114L. Machining Lab

Practical experience with manual machine tools such as mills, lathes, drill press, sheet metal tools, etc. Basic training in safe and proper use of the equipment associated with simple mechanical projects. Laboratory. *Must be taken in conjunction with MECH 114. P/NP grading* (1 unit)

115. Machine Design II

Continuation of MECH 114. Treatment of basic machine elements (e.g., bolts, springs, gears, bearings). Design and analysis of machine elements for static and fatigue loading. Team design projects completed. Design prototypes and formal final report required. *Prerequisite: MECH 114.* (4 units)

121. Thermodynamics I

Definitions of work, heat, and energy. First and second laws of thermodynamics. Properties of pure substances. Application to fixed mass systems and control volumes. Irreversibility and availability. *Prerequisite: PHYS 33.* (4 units)

122. Fluid Mechanics I

Fluid properties and definitions. Fluid statics, forces on submerged surfaces, manometry. Streamlines and the description of flow

fields. Euler's and Bernoulli's equations. Mass, momentum, and energy analysis with a control volume. Laminar and turbulent flows. Losses in pipes and ducts. Dimensional analysis and similitude. Laboratory. *Prerequisite: CENG 42 or MECH 140 (can be taken concurrently).* (5 units)

123. Heat Transfer

Introduction to the concepts of conduction, convection, and radiation heat transfer. Application of these concepts to engineering problems. Laboratory. *Prerequisites: MECH 121 and 122.* (5 units)

125. Thermal Systems Design

Analysis, design, and simulation of fluids and thermal engineering systems. Application of optimization techniques, life cycle and sustainability concepts in these systems. *Prerequisite: MECH 123.* (4 units)

132. Fluid Mechanics II

Introduction to gas dynamics. Concepts of lift and drag. Mechanics of laminar and turbulent flow. Introduction to boundary-layer theory. Application to selected topics in lubrication theory, aerodynamics, turbo-machinery, and pipe networks. Offered every other year. *Prerequisites: MECH 121 and 122.* (4 units)

140. Dynamics

Kinematics of particles in rectlinear and curvelinear motion. Kinetics of particles, Newton's second law, energy and momentum methods. Systems of particles. Kinematics and plane motion of rigid bodies, forces and accelerations, energy and momentum methods. Introduction to three-dimensional dynamics of rigid bodies. *Prerequisites: PHYS 31, CENG 41, AMTH 106, and MECH 10.* (4 units)

141. Mechanical Vibrations

Fundamentals of vibration, free and force vibration of (undamped/damped) single degree of freedom systems. Vibration under general forcing conditions. Free and force vibration of (undamped/damped) two degree of freedom systems. Free and force vibration of (undamped/damped) multidegree of freedom systems. Determination of natural frequencies and mode shapes. Laboratory. *Prerequisite: MECH 140.* (5 units)

142. Control Systems, Analysis, and Design

Introduction to system theory, transfer functions, and state space modeling of physical systems. Course topics include stability, analysis and design of PID, Lead/Lag, other forms of controllers in time and frequency domains, root locus Bode diagrams, gain and phase margins. Laboratory. *Prerequisite: MECH 141.* (5 units)

143. Mechatronics

Introduction to behavior, design, and integration of electromechanical components and systems. Review of appropriate electronic components/circuitry, mechanism configurations, and programming constructs. Use and integration of transducers, microcontrollers, and actuators. *Also listed as ELEN 123. Prerequisite: ELEN 50.* (5 units)

145. Introduction to Aerospace Engineering

Basic design and analysis of atmospheric flight vehicles. Principles of aerodynamics, propulsion, structures and materials, flight dynamics, stability and control, mission analysis, and performance estimation. Introduction to orbital dynamics. Offered every other year. *Prerequisites: MECH 122 and 140. Co-requisite: MECH 121.* (4 units)

146. Mechanism Design

Kinematic analysis and synthesis of planar mechanisms. Graphical synthesis of linkages and cams. Graphical and analytical techniques for the displacement, velocity, and acceleration analysis of mechanisms. Computer-aided design of mechanisms. Three or four individual mechanism design projects. Offered every other year. *Prerequisite: Junior standing in mechanical engineering.* (4 units)

151. Finite Element Theory and Applications

Basic introduction to finite elements; direct and variational basis for the governing equations; elements and interpolating functions. Applications to general field problems—elasticity, fluid mechanics, and heat transfer. Extensive use of software packages. Offered every other year. *Prerequisites: COEN 44 or equivalent and AMTH 106.* (4 units)

156. Introduction to Nanotechnology

Introduction to the field of nanoscience and nanotechnology. Properties of nanomaterials and devices. Nanoelectronics: from silicon and beyond. Measurements of nanosystems. Applications and implications. Laboratory experience is an integral part of the course. This course is part of the Mechanical Engineering Program and should be suitable for juniors and seniors in engineering and first-year graduate students. *Also listed as ELEN 156. Prerequisite: PHYS 33.* (5 units)

160. Modern Instrumentation for Engineers

Introduction to engineering instrumentation, computer data acquisition hardware and software, sampling theory, statistics, and error analysis. Laboratory work spans the disciplines of mechanical engineering: dynamics, fluids, heat transfer, controls, with an emphasis on report writing and experimental design. *Prerequisite: MECH 123.* (5 units)

188. Co-op Education

Practical experience in a planned program designed to give students work experience related to their academic field of study and career objectives. Satisfactory completion of the assignment includes preparation of a summary report on co-op activities. P/NP grading. *May be taken for graduate credit.* (2 units)

189. Co-op Technical Report

Credit given for a technical report on a specific activity such as a design or research project, etc., after completing the co-op assignment. Approval of department co-op advisor required. Letter grades based on content and presentation quality of report. May be taken twice. *May be taken for graduate credit.* (2 units)

192. Technical Writing

Organization of engineering proposals and reports. General aspects of technical communications. Development of oral presentation skills and strategies. *Prerequisite: ENGL 2.* (2 units)

194. Advanced Design I: Tools

Design tools basic to all aspects of mechanical engineering, including design methodology, computer-design tools, CAD, finite element method, simulation, engineering economics, and decision making. Senior design projects begun. *Prerequisite: MECH 115.* (3 units)

195. Advanced Design II: Implementation

Implementation of design strategy. Detail design and fabrication of senior design projects. Quality control, testing and evaluation, standards and specifications, and human factors. *Prerequisite: MECH 194.* (4 units)

196. Advanced Design III: Completion and Evaluation

Design projects completed, assembled, tested, evaluated, and judged with opportunities for detailed re-evaluation by the designers. Formal public presentation of results. Final written report required. *Prerequisite: MECH 195.* (3 units)

199. Directed Research/Reading

Investigation of an engineering problem and writing an acceptable thesis. Conferences as required. *Prerequisite: Senior standing.* (2–4 units)

6

Interdisciplinary Minors and Other Programs of Study

INTERDISCIPLINARY MINORS

ARABIC, ISLAMIC, AND MIDDLE EASTERN STUDIES

Director: David Pinault

The interdisciplinary minor in Arabic, Islamic, and Middle Eastern studies (AIMES) provides an introduction to the various cultures, peoples, and religions—Muslim, Jewish, and Christian—of the Middle East, as well as the diverse forms of Islamic practice in Muslim societies throughout the world. This program also encourages the study of diaspora and immigrant communities where Islamic and Middle Eastern populations constitute a religious or ethnic minority.

Students enrolled in this minor have the opportunity to sample a variety of methodologies and academic disciplines—including anthropology, art history, literary criticism, history, political science, and religious studies—that address the Middle East in particular and the Islamic world at large.

The AIMES interdisciplinary minor is ideal for students who want to develop the intellectual resources for thoughtful and informed engagement with current issues in the Middle East and the Islamic world. AIMES is also well suited for students considering work with overseas aid organizations, government service, international business or graduate programs in international studies.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Arabic, Islamic, and Middle Eastern studies:

Culture Courses

Students must take a total of six culture courses relating to AIMES (two lower-level and four upper-level) from at least three different departments. No more than two courses may be counted for AIMES credit from the department in which a student majors. A maximum of three courses for AIMES credit may be taken from any one department.

Arabic Language

Three quarters of Arabic are required. Students with prior knowledge of a relevant language may take a test that certifies that they have fulfilled this requirement.

Senior Project

In lieu of one of the six required courses in Middle Eastern and Islamic cultures, students may elect to do an independent study/reading course on a project in consultation with a member of the AIMES Faculty Advisory Council. This project may entail fieldwork with local Islamic and diaspora Middle Eastern communities in the Bay area.

Students enrolled in the AIMES minor are strongly encouraged to participate in SCU-approved study abroad programs that pertain to Arabic, Islamic, and Middle Eastern studies. Before enrolling in any such program, students should check with the director and faculty members of the AIMES minor as well as the International Programs Office.

ANTHROPOLOGY COURSES

ANTH 88. Women, Gender, and Sexuality in the Middle East
ANTH 156. Anthropology of Muslim Peoples and Practices
ANTH 188. People, Culture, and Change in the Middle East

ART HISTORY COURSES

ARTH 121. Venice and the Other in the Renaissance
ARTH 164. Islamic Art, 600-1350 CE

ENGLISH COURSES

ENGL 128. Studies in the Literature of the Middle Eastern and Islamic World

HISTORY COURSES

HIST 142. Modern Middle East and North Africa
HIST 145. Islam in the Modern World

MODERN LANGUAGES AND LITERATURES

ARAB 1. Elementary Arabic I
ARAB 2. Elementary Arabic II
ARAB 3. Elementary Arabic III
ARAB 21. Intermediate Arabic I
ARAB 22. Intermediate Arabic II
ARAB 23. Intermediate Arabic III
ARAB 50. Intermediate Arabic Conversation
ARAB 137. Arabic Culture and Identity
ARAB 164. The Art of Arabic Calligraphy

POLITICAL SCIENCE COURSES

POLI 139. Religion and Politics in the Developing World
POLI 142. Politics in the Middle East

RELIGIOUS STUDIES COURSES

RSOC 19. Egyptian Religious Traditions
RSOC 81. Islam
RSOC 82. Shia Islam
RSOC 154. The Islamic Jesus
RSOC 190. Islam: Reformation and Modernity

SCTR 19. Religions of the Book
SCTR 125. Quran Interpretation
SCTR 126. Sufi Mysticism

ASIAN STUDIES

Director: Gregory P. Corning

The Asian studies minor is designed to provide an introduction to the cultures and languages of Asia and to serve as a valuable complement to major fields of study. Courses in several disciplines enable students to sample different dimensions of Asian cultures as well as focus on a specific area of interest.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Asian studies:

Culture Courses

- Two lower-division courses and four upper-division courses (maximum of two upper-division courses from a student's major and three in any one department) selected from the list of approved courses

Language Courses

- Completion of the third course of the first-year, college-level sequence in an Asian language (Japanese and Chinese are offered) or demonstration of an equivalent level of proficiency by passing a language proficiency examination supervised by the Department of Modern Languages and Literatures
- Non-native speakers of English may satisfy this requirement by presenting professionally recognized documentation of proficiency in an Asian language

Field Project

- A field project approved by the program director

Students are encouraged to ask instructors in Asian studies courses about Arrupe placements or other ways they might complete a field project as part of a course. The program director can also help students design projects that suit their interests and means, either locally or abroad.

The Asian Studies Program strongly urges its students to spend a summer, quarter, or year in one of the many University-approved study abroad programs. Many of these programs offer internship or volunteer opportunities that satisfy the field project requirement.

UPPER-DIVISION COURSES: ASIAN STUDIES

ASIA 199. Directed Reading/Directed Research

Note: In addition to the courses listed below, many departments offer occasional special topics, directed reading, and seminar courses on Asian studies topics. Students should consult with the program director to determine the applicability of these courses, as well as study abroad courses, to the minor.

ANTHROPOLOGY COURSES

ANTH 181. Globalization and Culture Change in the Pacific Islands

ART HISTORY COURSES

ARTH 162. Japanese Art Since 1850

HISTORY COURSES

HIST 55. Introduction to Southeast Asia
HIST 92. Introduction to the History of East Asia
HIST 93. Introduction to the History of South Asia and the Indian Ocean
HIST 146A. Medieval and Early Modern Japan
HIST 146B. Modern Japan in the World
HIST 147A. Premodern China
HIST 147B. Modern China
HIST 150. Women in East Asia
HIST 151. Imperialism in East Asia
HIST 154A. Ancient, Classical, and Medieval India
HIST 154B. Modern India
HIST 159. Special Topics in Asian History
HIST 195. Seminar in Asian History
HIST 199. Directed Reading

MODERN LANGUAGES AND LITERATURES COURSES

CHIN 1–3. Elementary Chinese I, II, III
CHIN 21–23. Intermediate Chinese I, II, III
CHIN 100–2. Advanced Chinese I, II, III
CHIN 137. Modern Chinese Culture
CHIN 198. Directed Study
CHIN 199. Directed Reading
JAPN 1–3. Elementary Japanese I, II, III
JAPN 21–3. Intermediate Japanese I, II, III
JAPN 100–2. Advanced Japanese I, II, III
JAPN 113–5. Readings in Japanese I, II, III
JAPN 137. Japanese Culture
JAPN 198. Directed Study
JAPN 199. Directed Reading

POLITICAL SCIENCE COURSES

POLI 2. Introduction to Comparative Politics (with Asia focus)
POLI 122. East Asian International Relations
POLI 139. Religion and Politics in the Developing World
POLI 147. Politics in Japan
POLI 148. Politics in China
POLI 199. Directed Reading

RELIGIOUS STUDIES COURSES

RSOC 7. South Asian Religious Traditions
RSOC 10. Asian Religious Traditions
RSOC 82. Shia Islam
RSOC 85. Hinduism
RSOC 86. Buddhism
RSOC 88. Chinese Religions
RSOC 89. Japanese Religions
RSOC 115. Tibetan Buddhism: A Cultural History
RSOC 130. East Asian Buddhism
RSOC 185. Gender in Asian Religions
RSOC 199. Directed Reading and Research

BIOMEDICAL ENGINEERING

Director: Yuling Yan

Bioengineering is the fastest-growing segment of engineering today and holds the promise of improving the lives of all people in very direct and diverse ways. Biomedical engineering is closely related to bioengineering and involves applying principles and practice from engineering to create new knowledge in medicine and to advance the diagnosis and treatment of disease. The minor in biomedical engineering is designed for those students who are interested in the field but are majoring in other disciplines, particularly science majors in the College of Arts and Sciences, students completing prerequisites for medical school during their undergraduate studies, and engineering majors.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in biomedical engineering:

Natural Science Courses

- BIOL 21, 24, 25
- CHEM 11, 12, 13
- CHEM 31, 32
- PHYS 11, 12, 13, or PHYS 31, 32, 33

Mathematics Courses

- MATH 11, 12, 13

Engineering Courses

- BIOE 10
- ELEN 50 or PHYS 70
- COEN 44 or CSCI 10
- MECH 15

Bioethics Courses

- One course from PHIL 7, ENGR 19, or BIOL 171

Electives

Two courses from the following:

- BIOE 154, 156, 161, 162
- BIOL 122, 124, 175, 176

BIOTECHNOLOGY

Director: Ángel L. Islas

Biotechnology is revolutionizing the practice of medicine and agriculture and is having an impact on fields as diverse as human reproduction, forensics, manufacturing, and pollution control. The minor in biotechnology is designed for students interested in gaining insight into the scientific background of biotechnology, exploring its potential for the future, and obtaining practical experience in laboratory techniques used in biotechnology research and its applications. This course of study is most useful for students contemplating careers in the biotechnology industry and students who plan to pursue advanced degrees in related areas such as molecular biology, cell biology, or biochemistry. The minor will be most easily completed by students majoring in biology, combined sciences, or chemistry; other majors should consult with their advisors and begin the course of study as early as possible in order to complete the requirements in a timely manner. Twelve courses are required for the minor, at least seven of which must have laboratory components.

In addition to coursework, students are required to complete a research internship at a biotechnology company, a research institute, or an academic laboratory focusing on an area relevant to biotechnology (i.e., cell biology, molecular biology, biochemistry, genetics, or microbiology). Internships must be approved in advance by the director. The minimum length of the internship is 10 weeks of full-time work or 400 hours total time if done on a part-time basis. Students must prepare a written report on the project upon completion, to be evaluated by the director.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in biotechnology:

Scientific Foundations of Biotechnology

- BIOL 21, 24, 25, 175
- CHEM 11, 12, 31, 32

Ethical Issues

- BIOL 171

Advanced Laboratory Skills

- BIOL 176, BIOL 177, or CHEM 143

Contemporary Topics in Biotechnology and Related Fields

- BIOL 189

One Elective Course

- BIOL 110, BIOL 113, BIOL 174, or CHEM 141

CATHOLIC STUDIES

Director: Michael C. McCarthy, S.J.

The minor in Catholic studies, open to students from all departments, is an interdisciplinary program for the study of the intellectual tradition of the Catholic faith. The minor is designed for intensive study of Catholicism as a faith embedded in many cultures and for the critical retrieval of the Catholic intellectual tradition through dialogue with contemporary thought under the rubrics of a variety of academic disciplines. Catholic studies minors are assigned a faculty mentor who guides them through the program. In conjunction with the Ignatian Center for Jesuit Education, the Catholic Studies program sponsors intellectual, cultural, social, and religious opportunities for both students and faculty.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Catholic studies:

Foundational Courses

- Two courses in Catholic theology from offerings in the Department of Religious Studies
- One course from the Western Culture series

Faith and Culture Courses

- One specialized course in Catholic history
- One course in Catholic literature
- One specialized course in philosophy or an upper-division course in theology
- Two approved elective courses in the study of Catholic societies or cultures

The Colloquium

During sophomore, junior, and senior years, students may participate in a 2-unit interdisciplinary colloquium, "Catholic Imagination," which meets in one quarter each year for the discussion of topics in theology, literature, film, the arts, politics, and culture. Guest lecturers and artists present their work. The colloquium is open to all Santa Clara students, but first priority is given to Catholic studies minors.

MEDIEVAL AND RENAISSANCE STUDIES

Director: Blake de Maria

The minor in Medieval and Renaissance studies offers students from all departments a cross-disciplinary and interdisciplinary program of study in Europe's Middle Ages and Renaissance. These periods lay on the edge of modernity, when the distinctive characteristics of the contemporary world began to form and when major new connections were made between Europe and Africa, the Middle East, East Asia, and the Americas. Study of these periods from many different points of view affords an opportunity to gain valuable perspectives on the ways that Medieval and Renaissance persons, events, and institutions helped to shape the modern world. Completion of the minor is noted on the student's transcript, and students receive a certificate acknowledging their accomplishment.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in Medieval and Renaissance studies:

- Seven courses selected from three different departments with a maximum of three lower-division courses
- One of the upper-division courses must require an interdisciplinary research paper based on source materials and secondary works dealing with a topic rooted in the Medieval and/or Renaissance periods. The research paper requirement may be fulfilled by enrolling in MRST 199 under the supervision of an affiliated faculty member and the program director.
- The study of French, German, Greek, Italian, Latin, and/or Spanish is strongly recommended but not required. Students should consult with the program director to determine the cluster of courses best suited to their personal interests and preparation.

MEDIEVAL AND RENAISSANCE STUDIES COURSES

199. Independent Study

Directed reading and research in source materials and secondary works dealing with selected problems rooted in the Medieval and/or Renaissance periods, culminating in an interdisciplinary paper. *Prerequisite: Permission of program director and instructor. (2–5 units)*

Note: In addition to the courses listed below, many departments offer occasional special topics, directed reading/directed research, and seminar courses on Medieval and Renaissance topics. Students should consult with the program director to determine the applicability of these, as well as of courses taken at other institutions or while studying abroad, to the minor.

ANTHROPOLOGY COURSES

ANTH 146. Perspectives on the Spanish and Native American Experience

ART HISTORY COURSES

ARTH 21. The Ancient World
ARTH 22. The Visual Culture of Early Modern Europe
ARTH 110. Early Christian and Byzantine Art
ARTH 114. Early Medieval Art
ARTH 116. Romanesque and Gothic Art
ARTH 121. Venice and the Other in the Renaissance
ARTH 122. The Art of Early Modern Rome
ARTH 128. 17th-Century Italian Painting and Sculpture
ARTH 164. Islamic Art, 600-1350 CE

CLASSICS COURSES

CLAS 69. History of Early Christianity
CLAS 112. World of Augustine
CLAS 135. Medieval Latin

ENGLISH COURSES

ENGL 12A. Cultures and Ideas II
ENGL 41. Survey of English Literature I
ENGL 54. Shakespeare
ENGL 116. Shakespeare's Tragedies
ENGL 117. Shakespeare's Comedies
ENGL 118. Shakespeare Studies
ENGL 141. Studies in Medieval Literature
ENGL 143. Studies in Renaissance Literature
ENGL 188. Senior Seminars (on Medieval and Renaissance topics)

HISTORY COURSES

HIST 22. Western Civilization: Medieval and Early Modern
HIST 91. Introduction to the History of Africa
HIST 103. Encounter with the Other: the Jesuits in World History
HIST 117. State and Church in the Middle Ages: 1000–1450
HIST 119. Sex, Family, and Crime in Mediterranean Europe, 1300-1800
HIST 121. Interpreting the English Reformation
HIST 122. Pirates of the Mediterranean, Pirates of the Caribbean 1300-1800
HIST 126. Conflicts in Medieval Christianity
HIST 127. The World of St. Francis
HIST 146A. Medieval and Early Modern Japan
HIST 147A. Premodern China
HIST 154A. Ancient, Classical, and Medieval India
HIST 192. Seminar in Medieval or Early Modern Europe

MODERN LANGUAGES AND LITERATURES COURSES

FREN 115. Major Works of French Literature I
FREN 120. Moyen Age
FREN 130. Humanism and the Renaissance
ITAL 110. Italian Civilization I
ITAL 120. Survey of Italian Literature I
ITAL 130. Dante, La Divina Commedia I
ITAL 131. Dante, La Divina Commedia II
ITAL 140. Duecento, Trecento
ITAL 150. Quattrocento, Cinquecento (Rinascimento)
SPAN 120. Major Works of Spanish Literature I
SPAN 122. The Spanish Picaresque Novel
SPAN 123. Siglo de Oro Drama
SPAN 130. Survey of Latin American Literature I
SPAN 165. Cervantes: Don Quijote

MUSIC COURSES

MUSC 11A. Cultures and Ideas I
MUSC 12A. Cultures and Ideas II
MUSC 101. Music History I: Antiquity Through Renaissance

PHILOSOPHY COURSES

PHIL 11A. Cultures and Ideas I
PHIL 12A. Cultures and Ideas II
PHIL 132. Medieval Philosophy

RELIGIOUS STUDIES COURSES

RSOC 65. Early Christianity
RSOC 144. Gender, Body, and Christianity
SCTR 126. Sufi Mysticism
SCTR 132. Apocalypse Now
TESP 82. Witches, Saints, and Heretics: Religious Outsiders
TESP 143. Theology and Ethics of Thomas Aquinas

THEATRE COURSES

THTR 11A. Cultures and Ideas I
THTR 12A. Cultures and Ideas II
THTR 110. Medieval Theatre
THTR 112. Topics in Theatre and Drama prior to 1700
THTR 120. Acting Styles I: Shakespeare
THTR 151. Fashion, Politics, and Issues of Gender
THTR 187. Seminar in Theatre and Dance before 1700

RETAIL STUDIES

Director: Kirthi Kalyanam

Retailing is a dynamic and fast-paced industry and encompasses many functional areas. It demands a blend of creative and analytical skills. The minor in retail studies, offered through the Retail Management Institute, is an excellent immersion experience that prepares students for a diverse set of careers including buying, merchandising, planning and allocation, supply chain and information systems management. The program is open to all University undergraduates. Students entering the retail studies minor continue to major in their field of interest and receive their bachelor's degree in that field.

Business majors get an opportunity to focus their studies and discover an exciting industry in which to build their passions. For many business majors, broad business theories will develop deeper meaning as they are applied specifically to the retail industry. The innovations in Internet retailing and supply chain management provide great opportunities for OMIS majors and students interested in computer science. Retailing is at the forefront of trends in current culture and communication patterns. This provides a fertile ground for arts and science students to leverage their unique background.

One of the most valuable and unique aspects of the retail studies minor is the internship that takes place the summer after the junior year. This immersion experience gives students insight into the retail industry and potential careers that are available. Students acquire experience through a full-time, 10-week paid internship at internationally recognized retailers such as the Gap, Gymboree, Williams Sonoma, DFS Stores, and Nordstrom. The institute offers a wide variety of internships to fit different student interests and needs.

The minor is composed of a set of core courses and either a multi-channel or Internet retailing option based on the interests of the individual student. The core courses include a multi-channel retailing class in the spring quarter of their junior year and a two-quarter advanced retail seminar in the fall and winter quarters of their senior year. The core classes cover topics such as branding, product development, merchandise management, negotiation, store operations, team building, information systems, supply chain management, e-commerce, and pricing and promotion analysis.

Nonbusiness majors are encouraged to apply for admission to the program during their freshman or sophomore year to allow time to integrate their course of study in retailing with the requirements in their major field. Business students who have completed the lower-division requirements can enter the program as late as their junior year. The number of students admitted into the minor may be restricted in some years by the number of qualified internships available.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in retail studies:

- COMM 20 or MGMT 171
- ARTS 70, COMM 12, OMIS 34, or SOCI 49/149
- ECON 1
- OMIS 40, COMM 110, PSYC 40, or MATH 8
- MKTG 181

- MKTG 165
- Summer Internship: BUSN 198 or other approved internship
- MKTG 168 and 169

Students must select one of the following two options:

Multi-Channel Option

- ACTG 11
- OMIS 17
- MGMT 160

Internet Retailing Option

- ARTS 74 or ARTS 174
- ARTS 75 or ARTS 175
- MKTG 175, ARTS 177, OMIS 111, or OMIS 113

SCIENCE, TECHNOLOGY, AND SOCIETY

Executive Director: To Be Named

The Center for Science, Technology, and Society offers an interdisciplinary minor in science, technology, and society to provide students an integrated understanding of how science and technology shape society, and how society shapes the trajectory of science and the development of technology. The program introduces students to the ethical dimensions of technology development and application; an understanding of the impact of science and technology on society; and the knowledge of how science and technology can contribute to the common good.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in science, technology, and society:

- Four courses in the development of science and technology:

  ARTS 74, 75, 174, 175, 176, 177, 178, 179

  CENG 5

  COEN 1, 146, 150, 174, 178

  CSCI 10, 61, 164

  ENVS 2, 11, 20

  MKTG 175

  MATH 178

  OMIS 111, 113

- Three courses in the social forces shaping science and technology:
  ARTS 70
  COMM 12, 160A, 161B, 162A, 180A, 181A, 182A
  ENGR 19
  ENVS 10, 145
  LBST 75
  MGMT 161
  OMIS 34
  PHIL 80
  SOCI 49, 149, 160
- A minimum of four courses must be upper-division, including at least one upper-division course from each of the two required sections above, and no more than three courses may be from the same department
- Students must also attend at least four Center for Science, Technology, and Society symposia or colloquia and write brief critical summaries for a mentoring discussion and pass/no-pass evaluation by their minor advisor

URBAN EDUCATION

Director: Carol Ann Gittens

The minor in urban education provides Santa Clara undergraduate students seeking to become elementary or secondary teachers with the basics in educational theory, urban school observation and reflective experiences, Constitutional history of the United States, and the sociological and psychological foundations of education. The urban education minor has two distinctive components: foundational courses in education and a focus on urban education issues. The urban element springs from the Jesuit commitment to the poor and reflects the multicultural focus of Santa Clara's basic credential programs. Societal problems, such as poverty, crime, and prejudice challenge teachers and policy makers who struggle daily with how to strengthen the educational experience for children.

REQUIREMENTS FOR THE MINOR

Students must complete the following requirements for a minor in urban education:

- POLI 1 or HIST 96A
- EDUC 70, 106, 138, 198A/B
- PSYC 134
- One upper-division course in ethnic studies chosen with approval from the director of the urban education minor program

OTHER PROGRAMS OF STUDY

AEROSPACE STUDIES

Professor: Lieutenant Colonel Rick Moxley *(Chair)*
Assistant Professors: Major Cesar Gonzalez, First Lieutenant Melissa Ingram

Santa Clara University has entered into an agreement with San Jose State University that permits Santa Clara students to enroll in a program leading to a commission as a second lieutenant in the United States Air Force. The Air Force Reserve Officer Training Program offers a high-quality educational experience for college students in Air Force organization, history, officer skills, leadership and management, and national security policy and issues. Classes are offered on the San Jose State University campus.

LOWER-DIVISION COURSES

1A, B. Foundations of the U.S. Air Force

2A, B. Evolution of USAF Air and Space Power

The first year of instruction includes an overview of the Air Force, with focus on career opportunities and benefits, in addition to military communication skills and protocols. The second year builds on this foundation with a review of Air Force heritage and history, from dirigibles to the jet age. (1 unit per semester)

UPPER-DIVISION COURSES

131A, B. Air Force Management and Leadership

131A. Communicative Skills at the Junior Officer Level and Management Principles

131B. Executive Functions and Problem-Solving Tools, Practices, and Controls

Differing styles of leadership. Year course. *Prerequisites: AS 1A, B; AS 2A, B; or as determined by department chair.* (3 units per semester)

141A. National Security Affairs

Role of the Air Force in accomplishing national security objectives. U.S. national security and the relationships among various governmental institutions. Global perspective to include regional studies of Russia, Asia, Central and South America, Middle East, and Africa. *Prerequisite or co-requisite: AS 131B.* (3 units)

141B. Preparation for Active Duty

Examination of advanced leadership ethics and Air Force doctrine. Topics of special emphasis include the military as a profession, officership, military justice, and preparation for active duty. *Prerequisite or co-requisite: AS 141A.* (3 units)

180. Individual Studies

Application of theory and instruction in field and staff exercises. By arrangement. (3 units)

Leadership Laboratory

Dynamic environment in which cadets develop leadership and management skills by planning, organizing, directing, and coordinating exercises. Mandatory 2 hours per week for officer candidates.

GERONTOLOGY CERTIFICATE PROGRAM

Director: Patricia M. Simone

Gerontology is the study of the elderly and of the aging process. Majors from any field may enhance their credentials and their ability to work with the elderly through the gerontology certificate program. Students examine influences on the roles and quality of life of the elderly as well as physical and psychological aspects of aging. Courses investigate perceptions about the elderly in various societies and how the experiences of older people differ according to culture, ethnicity, class, and gender. Students complete a practicum that gives them experience working with the elderly. Completion of the gerontology certificate program is noted on a student's transcript and with a certificate acknowledging their achievement.

REQUIREMENTS FOR THE CERTIFICATE

Students must complete the following requirements to receive a certificate in gerontology:

- One lower-division course from SOCI 1, ANTH 3, PSYC 1, or PSYC 2
- Four upper-division courses from ANTH 172, BIO 187, COMM 156A, CHEM 142, POLI 168, PSYC 117, PSYC 196, SOCI 172, TESP 126 or any gerontology-related course with approval of the director
- A gerontology-related practicum approved by the director

UNIVERSITY HONORS PROGRAM

Director: William S. Greenwalt

The University Honors Program provides Santa Clara's most able students with intellectual opportunities based in small, seminar-style classes. With 14 to 17 students each, seminars emphasize analytical rigor, effective expression, and interaction among professors and students. In the classroom and elsewhere on campus, students enjoy a level of collaboration exceptional even at Santa Clara.

The University Honors Program comes in two levels. The first is usually by invitation and includes a curriculum of 10 courses. Students who have established a GPA at Santa Clara of 3.65 after 32 units of study may apply for admission to Level II. Six courses are required for students admitted at this level.

The course of study combines broadly based, liberal learning with depth of specialization in a major field. Honors program classes are designed to fit within the curricula of the humanities, natural and social sciences, business, and engineering. Possible majors include every undergraduate field in the University.

LOWER-DIVISON COURSES

11A. and 12A. Cultures and Ideas I and II

A two-course sequence focusing on a major theme in human experience and culture over a significant period of time. Courses emphasize either broad global interconnections or the construction of Western culture in its global context. (4 units each quarter)

13. Late Modern Culture

Examination of the later development (1700-now) of Western culture in the areas of art, history, philosophy, literature, and technology. *Enrollment normally limited to participants in the University Honors Program.* (4 units)

20. Difficult Dialogues

Freshman seminar devoted to the analysis from different perspectives of some issue, text, or problem in the area of a professor's expertise. This course will hone critical thinking skills with an eye to future research. (4 units)

Note: In addition to the Cultures and Ideas sequence (HNRS 11, 12), the program offers special courses and sections through specific departments including biology, chemistry, English, mathematics, philosophy, political science, and religious studies. There is also an Honors Contract Course option for students who wish to take a non-Honors course for Honors credit with approval from the director.

UPPER-DIVISION COURSES

100. Honors Seminar

An advanced seminar usually on an interdisciplinary topic. May be repeated for credit when topic changes. *Enrollment limited to students in the University Honors Program.* (5 units)

101. Fellowship Preparation

A seminar for those students interested in preparing for major fellowship competition (Rhodes, Marshall, Truman, Goldwater, etc.). *Open to freshmen and sophomores with permission of the instructor.* (2 units)

199. Honors Program Thesis

Course credit for thesis or culminating project of the University Honors Program. *Enrollment limited to students in the University Honors Program.* (1 unit)

INTERNATIONAL PROGRAMS

Executive Director: Dennis Gordon

International Programs offers minors in international studies and international business and coordinates study abroad and experiential learning opportunities for undergraduate students.

MINOR IN INTERNATIONAL STUDIES

Executive Director: Dennis Gordon

The minor in international studies is designed for students who wish to concentrate coursework beyond their majors on selected nations, regions, or topics of international significance. Students can choose between an area studies emphasis with a focus on Africa,

Europe, or Latin America or a thematic emphasis with a focus on a topic, such as poverty and development, international human rights, or peace studies.

The area studies emphasis on Africa offers an introduction to the cultures, languages, politics, and global challenges facing the continent of Africa and its people spread across the planet through colonialism, slavery, and globalization. The area studies emphasis on Europe offers an interdisciplinary introduction to the cultures, languages, politics, and global challenges facing the continent. The areas studies emphasis on Latin America offers an interdisciplinary introduction to the cultures, languages, politics, and global challenges facing the region.

The thematic emphasis offers students the opportunity to examine broad international issues that transcend a single nation or geographic area. Subjects such as international organization, poverty and development, cultural interdependence, diplomacy and law are by their very nature international. Such subjects require systematic approaches distinct from the examination of single-nation or area studies. Students develop their own themes and present a detailed proposal to the International Studies Committee for approval usually no later than the first quarter of their junior year. Students planning an off-campus program for their junior year should obtain this approval prior to their departure.

Area Studies Emphasis

Students must complete the following requirements for a minor in international studies with an area studies emphasis:

Foreign Language

- Two upper-division courses in a foreign language:

  Africa: French or Arabic

  Latin America: Portuguese or Spanish

  Europe: French, German, Italian, or Spanish
- The foreign language requirement may be fulfilled by examination through the Department of Modern Languages and Literatures.

Social Science

- One course from POLI 2, POLI 25, or ANTH 3

Geography

- One course in anthropology, sociology, or political science

Capstone Course

- A minimum of 20 hours in a class, internship, or community volunteer activity overseas with academic or other appropriate oversight and assessment. The requirement may be fulfilled by a minimum of one quarter study abroad at an appropriate site which includes community involvement outside of the classroom or an alternative approved by the executive director of international programs.

African Studies

Four courses from the following, at least three of which must be upper division and no more than two of which may be in the student's academic major:

- ECON 134, 135
- ENGL 35, 130, 157, 164, 166
- HIST 45, 104, 107, 141, 142, 143, 144, 149, 158, 193
- FREN 111, 112, 113
- POLI 146
- RSOC 18, 19, 22L, 46, 81, 170, 191
- TESP 131, 184

European Studies

Four courses from the following, at least three of which must be upper division and no more than two of which may be in the student's academic major:

- COMM 199
- ECON 117
- ENGL 149, 155, 168L, 184L
- HIST 13, 120, 121, 124, 131, 132, 134, 135, 136, 139, 193
- FREN 108, 110, 111, 116, 170, 171, 172, 180, 182, 183
- GERM 110, 111, 150, 151, 160, 182, 183
- INTL 111, 119
- ITAL 62, 112, 113, 180, 182
- SPAN 125, 150, 151
- PHIL 119, 119L, 129, 133, 144, 145, 183
- POLI 119, 129, 132, 133, 134, 143, 144, 145

Latin American Studies

Four courses from the following, at least three of which must be upper division and no more than two of which may be in the student's academic major:

- ANTH 185
- ARTS 17/117, 26/126
- ECON 130
- HIST 61, 62, 64, 161, 162, 163, 164, 169, 196
- POLI 124, 136, 136A, 137, 140, 196
- SOCI 134, 135
- SPAN 112, 115, 117, 130, 131, 135, 140, 141, 145, 146, 148

Thematic Emphasis

Students must complete the following requirements for a minor in international studies with a thematic emphasis:

Foreign Language

- Two upper-division courses in a foreign language
- The foreign language requirement may be fulfilled by examination through the Department of Modern Languages and Literature.

Social Science

- One course from POLI 2, POLI 25, or ANTH 3

Geography

- One course in anthropology, sociology, or political science

Thematic Focus

- Four courses selected with the approval of the International Studies Committee, at least three of which must be upper division and no more than two of which may be in the student's academic major

Capstone Course

- A minimum of 20 hours in a class, internship, or community volunteer activity overseas with academic or other appropriate oversight and assessment. The requirement may be fulfilled by a minimum of one quarter study abroad at an appropriate site which includes community involvement outside of the classroom or an alternative approved by the executive director of international programs.

MINOR IN INTERNATIONAL BUSINESS

Director: John Toppel

The minor in international business is designed to educate students in a broad range of management and business skills in a global context. The program of study for the international studies minor includes coursework in language, social science, and international business and is open to all undergraduate students. The minor provides students with an understanding of the social, economic, and political context of international business, the language communication skills, and the business skills to be effective managers in a global marketplace. Students are encouraged to participate in a study abroad program or internship to complement this minor.

Students must complete the following requirements for a minor in international business:

Foreign Language

- One course from ARAB 23, CHIN 23, FREN 50, FREN 100, GERM 100, ITAL 100, JAPN 23, SPAN 100

World Geography and Demography

- One course from ANTH 50, HIST 5, POLI 50, SOCI 50, or SOCI 138

Business Fundamentals

- ACTG 11, BUSN 70, ECON 1, ECON 2, ECON 3, and MGMT 80
- One course from MGMT 6, PHIL 6, or PHIL 112

Social Science in a Global Context

- One course from ECON 137, ECON 129, ECON 130, ECON 134, HIST 105, PSYC 162, POLI 119, POLI 121, POLI 122, POLI 136, POLI 137, POLI 140, POLI 142, POLI 144, POLI 146, POLI 148, or an approved course taken in the SCU El Salvador program. Also eligible is a selected comparative politics course approved by the director of the international business minor program.

International Business

- Two upper-division courses from ACTG 152, FNCE 151, MGMT 170, MKTG 178, ECON 181, ECON 182

Recommended (but not required):

- Completion of advanced language courses
- Internship related to an international business career
- Additional coursework in economic development, modern history, and politics of selected world regions

UPPER-DIVISION COURSES: INTERNATIONAL STUDIES

101. Contemporary Global Issues

Interdisciplinary focus on contemporary international social, cultural, and political topics. (1–5 units)

102. International Intercultural Competence

Interdisciplinary course designed for students preparing to study abroad. Considers the personal, cultural, and practical dimensions of studying in a different society. Part of a two-course sequence leading to a certificate in International Leadership. Students must be current applicants for summer, semester, or full academic year study abroad program. (2 units, P/NP only)

103. Applied International Intercultural Competence

Interdisciplinary course designed for students recently returned from an international study abroad or service learning experience. Emphasis on applying knowledge gained abroad for personal development and service to the community. Required for certificate in International Leadership. (2 units, P/NP grading only)

198. International Internship/ Experiential Learning

Directed internship or field placement with governmental or nongovernmental organization. Placements are supervised by a faculty member who meets with students to assess their academic achievement and participation at the placement site. *Permission of instructor required.* (1–5 units)

199. Directed Reading

Independent study. Written outline of the proposed course, with signatures of the sponsoring instructor and director of International Programs must be completed one week prior to registration. (1–5 units)

STUDY ABROAD PROGRAMS

Director: Barbara Colyar

Santa Clara provides global educational opportunities through study abroad and experiential learning programs operated by the University, affiliated programs operated by other institutions, and exchange programs. Programs are available for one quarter, a full academic year, or a summer session.

To be eligible to participate in a study abroad program, Santa Clara students must be admitted to degree status at the University, must have completed at least 88 quarter units of credit by the date that the program of study begins, must have declared an academic major, must not be on academic or disciplinary probation, and must be in good financial standing with the University. Transfer students must have earned a minimum of 15 quarter units of credit on the main SCU campus and satisfied all other eligibility requirements. Students must also meet any grade point average, language, or other eligibility requirements for the specific study abroad program. Approval by the student's academic advisor and the director of study abroad is required for participation in a study abroad program. Students who have completed less than 88 quarter units of credit or transfer students who have completed less than 15 quarter units of credit on the main SCU campus may participate in a study abroad program with the approval of the director of study abroad and the dean of academic support services. Units and grades earned for coursework in University-operated study abroad programs, University-affiliated study abroad programs, and University study abroad exchange programs are included in a student's Santa Clara academic history. Units earned in approved study abroad programs may be used to fulfill University Core Curriculum, college or school, department, or program requirements subject to prior approval by the appropriate dean's office, department chair, or program director. However, such units do not satisfy the University residency requirement. Grades earned in approved study abroad programs are included in the calculation of the Santa Clara grade point average.

Units earned for coursework in study abroad programs not operated by or affiliated with the University are accepted only as transfer credit and are subject to the policies governing units taken at other institutions in Chapter 8, Academic and Administrative Policies and Regulations.

SANTA CLARA EL SALVADOR PROGRAM

Directors: Kevin Yonkers-Talz and Trena Yonkers-Talz

Casa de la Solidaridad is an experiential learning program conducted in El Salvador by Santa Clara University. This semester-long program combines academic courses with direct experiential learning and service activities in and around San Salvador. Students live in community in the Casa, study at the University of Central America, and take part in community field placement projects for two full days per week. The program is offered in conjunction with the Association of Jesuit Colleges and Universities and the University of Central America, El Salvador and is open to Santa Clara students, students from other Jesuit universities, and students from selected other institutions.

UPPER-DIVISION COURSES: CASA DE LA SOLIDARIDAD

ECON 129. Economic Development

Students will look at the leading current issues in economic development from a developing country perspective. The course is aimed at gaining a deeper understanding of the different factors that explain observed differences in economic development across countries, with a special focus on the interaction between trade and development, and between markets and the state. As a special case study, the course will analyze the available evidence on the NAFTA and CAFTA experiences. (5 units)

INTL 130. Salvadoran Literature

Readings and analysis of works by Salvadoran authors, reflecting the national and historical reality of the country. Special focus on literature dealing with issues such as social inequality, the role of the woman in Salvadoran society, and implications of societal violence. *Enrollment limited to students in the Casa de la Solidaridad Program.* (5 units)

INTL 131. Sociology of Public Communication in El Salvador

Examination of the public discourses of power and the mass media of communication. Presents the contrast between the public discourse of power and alternative discourses, which are based on the principles of human dignity, the promotion of justice, and social equality. Basic theoretical tools for analyzing discourse and linguistic resources of power in El Salvador. *Enrollment limited to students in the Casa de la Solidaridad Program.* (5 units)

INTL 132. Perspectives on El Salvador's Civil War

Today's El Salvador cannot be understood without first understanding the war—its causes, its conduct, and its outcome. Each week, students meet with people who, in different ways, were involved in the war—officers and rank-and-file members of the government and guerrilla armies, government officials and political party leaders, diplomats, journalists, church workers, and others. Just war theory, as set forth in Catholic social teaching, is used to analyze the positions and actions of the parties to the war. *Enrollment limited to students in the Casa de la Solidaridad Program.* (5 units)

INTL 138. University of Central America Elective

For students participating in the Casa de la Solidaridad program in El Salvador, the option to enroll in a university course or develop an independent research project. *Enrollment limited to students in the Casa de la Solidaridad Program.* (5 units)

INTL 139. Field Praxis/Placement

Experiential field placement as part of the Casa de la Solidaridad program in El Salvador. Students work two full days per week in the community, and integrate this experience with academic readings, journals, social analysis, and reports. This experience serves as the springboard for academic, personal, and communal reflection, and is integrated into other coursework. *Enrollment limited to students in the Casa de la Solidaridad Program.* (5 units)

PHIL 151. Philosophy of Suffering and Solidarity

How ought we to live in a world marked by suffering and injustice? How should we interpret the chance meetings and interconnections that shape our lives? Can such moments help reveal what life is calling us to do and be? What role does a religious imagination play in our postmodern world, especially when we are faced with pain, violence, and disappointment? This course will begin to address these questions by exploring how

we try to find meaning in a world filled with contingency and injustice. Using a variety of sources including theological and philosophical essays, film, and literature, we will examine how one critically engages experiences of interconnection, solidarity, and suffering, and uses such experiences to discern one's vocation and calling. (5 units)

POLI 136A. The Political Structures and Processes in El Salvador and Central America

Examines the governmental institutions and political processes in Central America. Topics include forms of government, the role of political parties, electoral systems, and local government. Offered through the Casa de la Solidaridad in El Salvador. Taught in Spanish. *Enrollment limited to students in the Casa de la Solidaridad Program.* (5 units)

RSOC 196. Latin American Theology

From the indigenous spiritualities of pre-Hispanic times to the Catholicism brought about by the Spanish Conquest, to the churches of today, theological perspectives have strongly shaped Latin American culture and politics. The evolution of the theologies of liberation will be studied to see the various expressions and challenges the theology faces. (5 units)

SPAN 100. Advanced Spanish I

Inserts the students across the process of teaching-learning the Spanish language in the social, economic, political, and cultural realities of El Salvador. (5 units)

SPAN 110. Advanced Spanish Conversation

Inserts the students across the process of teaching-learning the Spanish language in the social, economic, political, and cultural realities of El Salvador. (5 units)

SANTA CLARA LONDON PROGRAM

Director: Dennis Parnell, S.J.

The Santa Clara London Program combines challenging academic courses with a required internship in business, the arts, or public service. Students may study in London for one semester or one quarter, depending on the term. The program combines courses taught by Santa Clara faculty and Santa Clara-approved instructors from the United Kingdom and Europe. All students are required to enroll in either INTL 110, British Life and Culture or INTL 112, British Life and Business. If attending a semester-length term, students must also enroll in INLT 119, London Internship. The program is operated jointly with the Foundation for International Education. Enrollment is limited to undergraduate students admitted to degree status at Santa Clara.

ARTH 133. History of Modern Design

Examines the products of applied design during the past 150 years, including examples of furnishings, industrial design, fashion, and graphic design, in relation to demand, technology and production, standards, fine art, social reform, and the dynamics of consumption. (5 units)

COMM 175A. Theology of Communication

Do the practices of communication have any consequences for theology? We know that St. Paul claims that "faith comes from hearing" and that Christian theology has taken communicative expression seriously throughout the centuries. This course examines how theology has used communication,

how it has evaluated communication, how communication contributes to theology, and how new communication technologies have a contemporary impact on theological and religious practices. Examines a variety of communication expressions (art, music, poetry, television programs, films, Web sites) as religious expressions; students will create their own theological expression using some contemporary medium. COMM 175 is a distance learning course. The instructor will be on-site for initial class meetings, with lecture, discussion, and assignments continuing via the Internet throughout the term. *Enrollment limited to students in the Santa Clara London Program.* (5 units)

COMM 189. International Communication Elective: Media in Britain

Explores British media organizations as social, economic, and cultural entities and examines specific determinants and processes of production. Areas of study will include broadcasting and the film industry, the press, and the 'convergent' new media of digital television and the Internet. *Enrollment limited to students in the Santa Clara London Program.* (5 units)

ENGL 184L. Special Topics: Shakespeare and Elizabethan Literature

Students will study a selection from the work of William Shakespeare in relation to Elizabethan culture and the wider literary traditions of Renaissance drama. Plays will be considered both as texts that reflect the preoccupations of both 16th-century writers and their audience and as plays alive in performance. (5 units)

FNCE 121L. Financial Management

Introduction to the financial questions facing companies and their answers. Topics include stocks and bond valuation, capital budgeting, short- and long-term financing, financial analysis and forecasting, cash management, credit policy, and dividend policy. *Prerequisites: ACTG 11 and 12 and proficiency with spreadsheets.* (5 units)

HIST 39L. History of Britain, 1815 to Present

Examines the key political, social, and cultural developments that make up the remarkable story of Britain from 1815 to the present time. Students will develop an awareness of the main and evolving frameworks of British society, an understanding of Britain's changing place in the world, and an ability to critically analyze simple primary historical sources. (4 units)

INTL 110. British Life and Culture

Mandatory course for students participating in the Santa Clara London Program. Takes students beyond the initial aspects of cultural difference and offers insights as to what makes British culture distinct. All students in the London program must enroll in 110 or 113. *Enrollment limited to students in the Santa Clara London Program.* (5 units)

INTL 112. British Life and Business

An examination of British culture and life in a business context. Issues of politics, monarchy, parliament, and democracy in England and the significance of the British Empire in the development of multiculturalism, as well as the country's impact on the development of business and trade. Students will also study the United Kingdom as part of the European Union and its complex role in it. Cultural impact on the organizational decision making, negotiations, human resource management, and business functions, such as marketing. *Enrollment limited to students in the Santa Clara London Program.* (5 units)

INTL 114. British Life and Culture: A Sporting Pilgrimage

A study of British culture through sports and the global city in the run-up to the 2012 Olympics in London, approached

from both a historical and contemporary perspective. Insight into the wide range of British sports, sports organizations, business practices, and the important role that sport plays in the nation's culture. A study tour is included. (5 units)

INTL 119. London Internship

Experiential-based learning in association with the Santa Clara London Program. Provides academic framework for placement in business, public sector, or humanities. All internships are unpaid. *Enrollment limited to students in the Santa Clara London Program.* (5 units)

INTL 198. International Research

Working with a faculty sponsor on the Santa Clara campus and the Foundation for International Education in London (FIE), students will design and carry out an independent research project. The project may be self-contained or part of a longer-term requirement at Santa Clara, such as a senior or honors thesis. Topics will center on British cultural, historical, political, or contemporary contexts and may have a comparative dimension. The methods employed must involve direct involvement in British society and intellectual life through visiting libraries, archives, participant-observer methodologies, survey research, and other approved scholarly techniques. *Permission of instructor required.*

MGMT 80L. Global Business

Designed to enable students to understand the critical importance of the role of multinational decision making and strategy with respect to business. Examines major issues in international trade and commercial policy and uses real-world applications to derive and illustrate models of international trade. Covers rationales and benefits of international trade, protectionism, the political economy of commercial policy, international trade and development, and economic integration and world trade. (4 units)

MKTG 178L. International Marketing

Explores the decision-making process in the marketing of products and services in the international marketplace. Covers the formulation of key elements in international marketing strategy, such as identification and assessment of potential markets, price setting, and design, promotion, and distribution of products and services. Explores issues such as the competitive advantage of nations, the changing nature of the international social and business environment, and the emerging role of the Internet in international marketing. (5 units)

MUSC 115. Special Topics: Music in 20th-Century Britain

Examines a wide range of musical styles important in 20th-century Britain. Considers music-making from diverse settings: the South London Anglo-Caribbean community to "Madchester" all-night parties; rural folk clubs to West-End variety shows; and coal-mine brass bands to art-house cinema. Examines the nature of the musical material; the forms and the instrumentation; and the cultural, political, and economic context in which it was created. Students will attend shows related to the course material. (5 units)

POLI 119L. The Economic Integration of the European Union

Provides a comprehensive examination of the processes of European economic integration, and offers a critical analysis of European Union policies in their broader political/economic context. Focuses on the external dimension of Europe in the global economy. (5 units)

POLI 149L. Special Topics in Comparative Politics: British Politics

Introductory course on contemporary British politics, with no previous political science requirement. Provides students with

a basic understanding of Britain's system of government and political process, as well as the socio-historical processes that have shaped modern Britain. These include the monarchy, the Parliament, political parties, the prime minister, political ideology, and political culture. Comparisons with American politics and society will be made as a point of reference to provide students with a better framework for understanding British politics. (5 units)

RSOC 22. Understanding Civilizations: Islam and the West

This course aims to introduce North American college students to the religion and culture of Islam and how these relate to the Western world (centered on Europe and North America). The course adopts an historical approach, charting developments in the Middle East since the rise of Islam, and contextualizing the current relationship between 'Islam' and the 'West.' A number of key issues are addressed in order to examine and challenge stereotypes and demystify 'the Other.' (4 units)

SOCI 193L. Ethnic History of Modern Britain

This course will examine the ethnic diversity of modern Britain in relation to the processes of immigration and emigration. The course will examine the imperial and post-colonial experiences of people from a diversity of ethnic and religious backgrounds (Jewish, Irish, Islamic, Black African, etc.) in order to understand their lives and experiences in this country and the way in which they view their own cultures and identities. (5 units)

SOCI 193L. Social Welfare Issues in the United Kingdom

The object of this course is to introduce participants to the historical and conceptual framework within which social welfare provision has developed in the U.K. In addition, comparative perspectives on U.S. and U.K. practice will be developed: contrasting notions of "philanthropy" will be analyzed. The contrast between Franklin D. Roosevelt's New Deal in the 1930's and the Welfare State in post-war Britain will serve to exemplify historical similarities and distinctions between the two national approaches. This course is intended to explore current issues in social welfare provision particularly in the nonprofit, nongovernmental sector. (5 units)

THTR 111L. Contemporary British Theatre

This course introduces students to a variety of texts, performances, and theatrical venues that reflect the vitality of contemporary British theatre. London has around 100 theatres, of which 15 are occupied by subsidized companies. Large commercial theatres can be found in the West End offering a variety of light entertainment, musicals, and comedies. Off-West End productions may feature plays with more individual themes. The most innovative and experimental work is usually found in the 'fringe' theatres. This course will try and offer a 'taste' of all these modes of production, and a consideration of state subsidy for theatre within a critical framework. Students will be expected to analyze and comment critically upon various shows in performance. *Also listed as ENGL 113L. Enrollment limited to students in the Santa Clara London Program.* (5 units)

SANTA CLARA CUBA PROGRAM

Director: Robert Bozina

Santa Clara University offers a 14-week course of study in Havana, Cuba in collaboration with Cuba's Centro Nacional de Escuelas de Arte. Courses are taught by members of the faculty from Santa Clara and Centro Nacional de Escuelas de Arte. Courses involve musical ethnology, Afro-Cuban cultural history, Cuban literature, and studio instruction in music and dance at whatever level is appropriate for each student, beginning through advanced. During the course of study, participants are involved in research and educational field trips outside Havana to Santiago de Cuba and Guantanamo to investigate several types of Cuban music and dance including Son, Trova, Comparsas, Changui and Tumba Francesa. The program provides lodging, meals, and assistance with transportation. Enrollment is limited to undergraduate students admitted to degree status at Santa Clara and is operated according to all United States government licensing requirements. Descriptions of courses offered through the program can be found in the departmental listings in the appropriate department in Chapter 3, College of Arts and Sciences.

SANTA CLARA AFFILIATED PROGRAMS

Santa Clara provides study abroad opportunities during the academic year for undergraduate students at locations around the world with a variety of language prerequisites, housing options, and course choices through other institutions. Coursework completed at affiliated study abroad programs can be applied to the unit requirement for a student's degree and also may fulfill University Core Curriculum requirements, college or school requirements, and academic major or minor requirements subject to the appropriate approval by the University. Study abroad options are offered through Arcadia University, the Council of International Educational Exchange, Gonzaga University, Loyola University, Syracuse University, Borderlinks, Danish Institute for Study Abroad, the Institute for the International Education of Students, School for Field Studies, the Organization for Tropical Studies, Boston University, the Beijing Center, and Semester at Sea. Enrollment is limited to undergraduate students admitted to degree status at Santa Clara.

SANTA CLARA EXCHANGE PROGRAMS

Santa Clara provides study abroad opportunities during the academic year for undergraduate students through exchange programs with 11 universities in 10 countries. Coursework completed at exchange study abroad programs can be applied to the unit requirement for a student's degree and may also fulfill University Core Curriculum requirements, college or school requirements, and academic major or minor requirements subject to the appropriate approval by the University. Study abroad exchange programs are offered in Australia through the Australian Catholic University, in Canada through Simon Fraser University, in Chile through Universidad Alberto Hurtado, in France through Universite Catholique de Lille, in Italy through Universita degli Studi di Firenze, in Japan through Sophia University and University of the Sacred Heart, in Mexico through Universidad Iberoamericana Puebla, in the Philippines through Ateneo de Manila, in Spain through Universidad de Deusto, and in Sweden through Lund University.

SANTA CLARA SUMMER PROGRAMS

Santa Clara operates study abroad programs in El Salvador, Costa Rica, the United Kingdom, Italy, and Germany during the summer session. With the exception of El Salvador, enrollment is limited to undergraduate students admitted to degree status at Santa Clara.

El Salvador

The El Salvador summer program is designed for students interested in pursuing careers in the health profession. Students integrate classroom learning with experiential community-based learning in marginal Salvadoran communities. Each student will have a field placement where they will work four afternoons a week in either a hospital or clinic supervised by Salvadoran medical professionals. Students live in community with other students as well as with peer Salvadoran students studying at Central American University. Students take one of two Spanish courses depending on their language proficiency and the field praxis course.

Costa Rica

The Costa Rica summer program offers a small cohort of students an opportunity to experience the breathtaking beauty and astounding biodiversity of Costa Rica's natural ecosystems, while appreciating the challenges this small Central American nation faces in sustainably developing its economy and providing livelihoods for its people. Students enroll in two courses taught by Santa Clara University instructors, and upon successful completion of the course requirements receive a total of 10 units of credit. Students have one week of pre-field instruction at Santa Clara, then spend three weeks traveling through Costa Rica, staying at biological field stations or tourist facilities as well as doing brief home stays with Costa Rican families. Opportunities to meet Costa Ricans and other Latin American students, learn Spanish, and do community service complement the academic offerings, which focus on drawing, observing nature, understanding rainforest ecology, and learning about sustainable development and ecotourism.

United Kingdom

Santa Clara offers a summer program at a selected site in the United Kingdom, Stirling in Scotland, and a summer internship in London. Students enroll in two upper-division courses for 10 units of credit. Courses are taught by faculty from Santa Clara and local British universities. Courses explore various aspects of English literature, history, religious belief, media, environmental issues, and political life.

Italy

Santa Clara offers various opportunities for summer study in Italy, including Rome. The Rome program includes Italian language classes at various levels and other classes dealing with contemporary Italy and Europe. Students live at a pensione run by an Italian family and there are excursions to the surrounding area.

Germany

The Germany summer program is located in the city of Freiburg. German language courses are offered in conjunction with the Department of Modern Languages and Literatures at Santa Clara University. Students fulfill the equivalent of two quarters of language requirements in the four-week program. In addition to the language courses, a

course in contemporary German civilization is also offered. Lectures and seminars offer a survey of literary, linguistic as well as cultural, historical, political, legal and social developments in Germany. Depending on individual language skills, summer course participants may attend all afternoon lectures and seminars.

Affiliated Programs

Santa Clara provides a limited number of study abroad opportunities during the summer for undergraduate students through other institutions. Coursework completed in summer affiliated programs can be applied to a student's degree requirements subject to the appropriate approval by the University. Information about specific programs offered in the summer is available from the International Programs Office.

LEAD SCHOLARS PROGRAM

Director: William S. Greenwalt

The LEAD (Leadership, Excellence, and Academic Development) Scholars Program provides first-generation University students with a smooth transition to life at Santa Clara. This is a four-year program involving support as well as challenge, with a special emphasis on the first-year experience. The program is committed to fostering an atmosphere of successful scholarship, community engagement, and service.

1. LEAD Scholars Seminar

Reserved for LEAD Scholars only. This fall course aims to assist students in getting the most out of their University experience by developing the academic strategies and personal self-management strategies essential for success at Santa Clara. Seminar discussions and exercises focus on a variety of topics, including transitional issues, growth, and development. (2 units)

2. LEAD Scholars Seminar

Reserved for LEAD Scholars only. The winter seminar aims to build upon the leadership development of LEAD Scholars and encourages application to campus leadership opportunities. Weekly seminar discussions and exercises will focus on a variety of topics, including résumé writing, presentations by University organizations, and higher education research that explores student experiences as well as spring quarter course registration meetings. (2 units)

10. Difficult Dialogues

Explores contemporary controversies through case studies. Focuses on the meanings of dialogue and academic freedom through small group discussions and exercises. (2 units)

MILITARY SCIENCE PROGRAM

Professor: Lieutenant Colonel Shawn W. Cowley *(Director)*
Assistant Professor: Captain Vincent Mucker

The Military Science Program offers classes open to all Santa Clara students and the Bronco Battalion, an Army Reserve Officer Training Corps (ROTC) battalion of cadets from Santa Clara University, Stanford University, and San Jose State University. The military science program is designed to develop management skills and leadership abilities for

successful careers in both the corporate world and the military. Students who complete the ROTC program are eligible for appointment and commissioning as officers in the Army Reserve. Reserve commissions are tendered in all basic branches of the Army. A board of officers determines the branch in which students are commissioned based on their preference, leadership potential, academic background, and the needs of the service.

The military science core curriculum consists of six lower-division classes in the ROTC Basic Course and seven upper-division courses in the ROTC Advanced Course. Cadets may take a summer course (MILS 24) in lieu of the six lower-division courses. The professional military education of ROTC cadets consists of two components: a baccalaureate degree from Santa Clara University (or one of the cross-enrolled universities) and at least one undergraduate course from each of five designated fields of study. Prior to commissioning, cadets must take at least one course in military history and computer literacy.

The curriculum is divided into ROTC Basic Course requirements and ROTC Advanced Course requirements. To proceed to the ROTC Advanced Course classes, students must complete either the six required ROTC Basic Course classes or attend a summer class at Fort Knox, Kentucky. The director of the military science program must approve exceptions to this progression.

ROTC Basic Course Requirements

The ROTC Basic Course, Fundamentals of Leadership and Management, includes the first-year and second-year courses (MILS 11, 12, 13, 21, 22, and 23) designed for beginning students who want to qualify for entry into the ROTC Advanced Course and for those students who may want to try military science without obligations. A student can also qualify for entry in the ROTC Advanced Course by completing the summer training camp (MILS 24).

ROTC Advanced Course Requirements

The ROTC Advanced Course, Advanced Leadership and Management, consists of the third-year and fourth-year courses (MILS 131, 132, 133, 134, 141, 142, and 143) open to students who have completed or earned placement credit for the ROTC Basic Course.

Students must complete all courses numbered greater than MILS 130, to include MILS 134, a six-week Leader Development and Assessment Course during the summer, in sequence, unless otherwise approved by the professor of military science. The ROTC Advanced Course qualifies students for commissions as officers in the U.S. Army. Students who do not desire to compete for a commission as an officer in the Army may take these courses for academic credit with approval by the professor of military science.

Leadership Laboratories

Leadership laboratories, held weekly for three hours, are required of all students. Performance during lab periods is reflected in the student's course grade. Labs include activities such as rappelling, terrain navigation, marksmanship, drill and ceremonies, and tactical field training exercises.

Labs and Field Exercises

During each quarter of class work, weekly lab work is required. Two off-campus exercises involving adventure training, rappelling, rifle marksmanship, leadership training, and survival skills are optional for nonscholarship ROTC Basic Course students. Two off-campus exercises focusing on leadership and military skills are mandatory for ROTC Advanced Course students.

LOWER-DIVISION COURSES

11. Leadership and Personal Development

Introduces students to the personal challenges and competencies that are critical for effective leadership. Students learn how the personal development of life skills such as goal setting, time management, physical fitness, and stress management relate to leadership and officership. Students develop their own personal fitness program under the guidance of an Army master fitness trainer. Two 60-minute classes per week; weekly three-hour leadership labs required. One four-day weekend field exercise away from the University. (3 units)

12. Foundations in Leadership I

An overview of leadership fundamentals such as setting direction, problem solving, listening, presenting briefs, providing feedback and using effective writing skills. Students begin to explore leadership dimensions and values. Two 60-minute classes per week. Weekly three-hour leadership labs required. One military formal dinner. (3 units)

13. Foundations in Leadership II

An overview of the leadership framework with practical applications in fundamentals such as problem solving, listening, presenting briefs, and using effective writing skills. Students explore dimensions of leadership, values, attributes, skills, and actions in the context of practical, hands-on, and interactive exercises. Two 60-minute classes per week. Weekly three-hour leadership labs required. One four-day weekend field training exercise away from the University. (3 units)

21. Innovative Leadership

Explores the dimensions of creative leadership strategies and styles by studying historical cases and engaging in interactive exercises. Students practice aspects of personal motivation and team building within the context of planning, executing and assessing team exercises. Focus will be on the continued development of the knowledge of leadership values and attributes through an understanding of organizational customs and courtesies. Leadership case studies provide tangible context for learning Individual Creeds and Organizational Ethos. Two 60-minute classes per week. Weekly three-hour labs. One military formal dinner. (3 units)

22. Leadership in Changing Environments I

Examines the challenges of leadership in complex contemporary operational environments. Dimensions of the cross-cultural challenges of leadership in a constantly changing world and their application to leadership tasks and situations. Case studies stressing importance of teamwork and tactics in real-world settings. Two 60-minute classes per week. Weekly three-hour labs. One military formal dinner. (3 units)

23. Leadership in Changing Environments II

Examines the decision-making process and plans/orders that enable small units to complete assigned tasks. Planning techniques used to develop orders and briefing plans and decisions. Two 60-minute classes per week. Five three-hour labs per quarter. One four-day field training exercise away from the University. (3 units)

24. Leader's Training Course

A four-week summer training camp at Fort Knox, Kentucky. Students receive pay, travel, lodging, and the Army defrays most meal costs. The course environment is rigorous and teaches skills required for success in the Army ROTC Advanced Course. No military obligation is incurred. Open only to sophomores and juniors who have not taken ROTC courses during the regular school year or for ROTC course alignment. Students must pass a physical examination

(paid for by ROTC). Completion of MILS 24 qualifies a student for entry into the Advanced Course. Candidates can apply for a class seat anytime during the school year. (P/NP grading only). (4 units)

35. Special Topics: Foundations of Leadership in a Changing Environment

Examines specific topics dealing with leadership at the lieutenant level or challenges facing senior military leadership in the contemporary operating environment. *Prerequisite: Department chair approval.* (3 units)

UPPER-DIVISION COURSES

131. Adaptive Team Leadership

Challenges students to study, practice, and evaluate adaptive leadership skills as they are presented with the demands of the ROTC Leader Development Assessment Course. Challenging scenarios related to small unit tactical operations are used to develop self-awareness and critical thinking skills. Students receive systematic and specific feedback on their leadership abilities. Two 90-minute classes per week. Weekly three-hour labs. One mandatory four-day field training exercise away from the University. *Prerequisites: MILS 11, 12, 13, 21, 22, and 23, or consent of department chair.* (4 units)

132. Situational Leadership I

Study of intense situational leadership challenges to build student awareness and skills in leading small units. Skills in decision-making, persuading, and motivating team members when "under fire" are explored, evaluated, and developed. Two 90-minute classes per week. Weekly three-hour labs. One military formal dinner. *Prerequisite: MILS 131, or consent of department chair.* (4 units)

133. Situational Leadership II

Practical applications of intense situational leadership challenges that will provide awareness and specific feedback on leadership abilities. Student skills are evaluated using practical applications in decision making, persuading, and motivating team members when "under fire." Aspects of military operations are reviewed as a means of preparing for the ROTC Leader Development Assessment Course (LDAC). Two 90-minute classes per week. Weekly three-hour labs. One mandatory four-day field training exercise away from the University. *Prerequisite: MILS 132, or consent of department chair.* (4 units)

134. Leader Development and Assessment Course

A six-week summer training course conducted at Fort Lewis, Washington. Only open to (and required of) students who have completed MILS 131, 132, and 133. Students receive pay, travel, and lodging, and the Army defrays most meal costs. The course's environment is highly structured and demanding, stressing leadership at the small-unit level under various challenging circumstances. Although this course is graded on a Pass/Fail basis only, the leadership and skill evaluations at the camp weigh heavily in the subsequent selection process that determines the type of commission and career field of students upon graduation from ROTC and the University. (4 units)

141. Developing Adaptive Leaders

Students develop proficiency in planning, executing, and assessing complex operations; in functioning as a member of a staff; and in providing leadership performance feedback to subordinates. Students are given situational opportunities to assess risk, make ethical decisions, and provide coaching to fellow ROTC students. Students are challenged to instruct younger students. Students identify

responsibilities of key staff roles and use situational opportunities to develop subordinates. Two 90-minute seminars per week. Weekly three-hour labs. One mandatory four-day weekend field training exercise away from the University. *Prerequisite: MILS 133, or consent of department chair.* (4 units)

142. Leadership in a Complex World I

Explores the dynamics of leadership in the complexity of current military operations. Students examine customs and courtesies, military law, principles of war and rules of engagement in the face of international terrorism. Aspects of interacting with non-governmental organizations, civilians on the battlefield, and host nation support are examined and evaluated. Two 90-minute seminars per week. Weekly three-hour labs. One military formal dinner. *Prerequisite: MILS 141.* (4 units)

143. Leadership in a Complex World II

Significant emphasis is placed on preparing students for their first unit of assignment andtransition to lieutenant. Case studies, scenarios, and exercises are used to prepare students to face the complex ethical and practical demands of leading as commissioned officers in the U.S. Army. Two 90-minute seminars per week. Weekly three-hour labs. One mandatory four-day weekend field training exercise away from the University. *Prerequisite: MILS 142.* (4 units)

176. Military History

A survey of the military and diplomatic aspects of American involvement in conflicts from the Anglo-Indian Wars to the present. Two 105-minute classes per week. One mandatory off-campus weekend historical visit is conducted in San Francisco during the quarter. (4 units)

199. Independent Study

Examine specific issues facing the United States Army as a directed study with the department chair and the senior military instructor. Topic selected in consultation with the department chair. Issues of diversity in the military will be embedded in the topic. *Prerequisite: Approval of the department chair.* (3 units)

MUSICAL THEATRE

Director: Barbara Murray

The musical theatre minor offers experience and training in music, theatre, and dance as well as aspects of the visual arts and literature. Musical theatre is prominent in America as art, entertainment, social commentary, and civic engagement; it therefore plays a part in Jesuit education of the whole person for the service of others. The objectives of this program include: entry-level proficiency for a career in performance, enhancement in teaching, or further training in graduate school; audition techniques; performance of acting, singing and theatrical dance; and knowledge of the cultural history and various forms of musical theatre. The student may pursue one of two tracks: The American musical theatre or the lyric theatre (opera/operetta).

REQUIREMENTS FOR THE MINOR

- Theory: MUSC 1 and 1A or MUSC 7
- Singing: MUSC 34 and three quarters of on-campus private voice instruction
- Acting: THTR 20, 123
- Dance: Two courses from DANC 40, 43, or 46
- Students in American theatre option: DANC 55 or 155, THTR 165 and 80 or 180
- Students in lyric theatre option: MUSC 103, 109, 50 or 150, 51 or 151

PRE-HEALTH SCIENCES

Advisor: Steven L. Fedder

Santa Clara University has an excellent reputation for preparing students for careers in the health sciences. Most incoming students tend to be focused on either allopathic medicine or dentistry, but a much broader spectrum of careers can be equally or more attractive, including osteopathic medicine, physical therapy, optometry, pharmacy, physician assistant, nurse practitioner, and others. A Santa Clara education provides ample opportunity to acquire the academic foundations in natural science required by medical schools, and its broad liberal arts Core Curriculum also serves to develop the communication, personal interaction, and analytical skills needed both during medical school and in one's subsequent medical practice.

Although Santa Clara does not have a pre-med major, the courses prescribed by the Council of Education of the American Medical Association can be incorporated into several academic majors.

Most medical schools require:

- One year of general chemistry (CHEM 11, 12, and 13)
- One year of organic chemistry (CHEM 31, 32, and 33)
- One year of biology (BIOL 21, 24, and 25)
- One year of physics (PHYS 11, 12, and 13 or PHYS 31, 32, and 33)
- One year of mathematics, typically calculus (MATH 11 and 12) and a statistics course

In addition, many students become more skilled and competitive by enrolling in two or three upper-division science courses in biochemistry, genetics, and human physiology that are helpful in preparing for the Medical College Admission Test. The choice of academic major is much less important than completing the coursework above; however, many pre-health students select a natural science major like biology, chemistry, or combined sciences.

Students should maintain regular contact with the pre-health sciences advisor throughout their undergraduate years for assistance with adjustment to college academic rigor and social life; an appreciation of the wide array of available health care careers; assistance with the balance between academics, social life, work, health community volunteering, and internships; and assistance with the relevant entrance examinations and application to health science programs.

PRE-LAW

Director of Pre-Law Advising: Susan Frisbie

Santa Clara University provides a wide range of opportunities for undergraduates interested in attending law school to build a strong pre-law foundation. Early in their undergraduate program, pre-law students should consult not only with their major advisor but also with one of the designated pre-law advisors to formulate a program designed for their specific needs and career goals. There is no specific major or curriculum required to qualify for law school admission. Successful law school applicants come from majors as diverse as anthropology, philosophy, communication, political science, physics, English, history, biology, and economics. Law school admissions officers recommend undergraduate preparation in a major that demands discipline, analytical ability, research skills, and precision in written and oral work. The departments of Anthropology, Philosophy, and Political Science offer a pre-law or a law and society emphasis within the major. Elective courses also provide valuable training and breadth of academic and analytical experience. Some elective courses strengthen specific abilities, while others provide perspective on legal issues and topics. Possible electives include, but are not limited to the following:

ANTHROPOLOGY COURSES

ANTH 151. Law and Society
ANTH 155. Conflict Resolution

COMMUNICATION COURSES

COMM 20. Public Speaking
COMM 170A. Communication Law and Responsibility

ECONOMICS COURSES

ECON 126. Economics and the Law

ENGLISH COURSES

ENGL 174. Nonfiction Writing
ENGL 177. Argumentation

ENVIRONMENTAL STUDIES COURSES

ENVS 120. Introduction to Environmental Law and Regulation in the U.S.

PHILOSOPHY COURSES

PHIL 10. Ethical Issues in the Law
PHIL 25. Informal Logic
PHIL 154. Philosophy of Law

POLITICAL SCIENCE COURSES

POLI 160. The Constitution and Equality
POLI 161. Law and Politics in the U.S.

SOCIOLOGY COURSES

SOCI 176. Elder Law

PRE-TEACHING

Director: Carol Ann Gittens

Santa Clara University is accredited by the California Commission on Teacher Credentialing to offer professional preparation for prospective elementary school, middle school, and senior high school teachers. The Department of Education in the School of Education, Counseling Psychology, and Pastoral Ministries offers graduate programs for the multiple-subject credential for elementary grades and the single-subject credential for secondary grades, both with a cross-cultural language and academic development emphasis. The preliminary teaching credential can be initiated during the four-year undergraduate program through the Undergraduate Accelerated Teaching Credential Program or during a fifth year of graduate study. Students interested in teaching should consider completing a minor in urban education offered through the Liberal Studies Program.

The Eastside Future Teachers Project is a program developed to attract Eastside Union High School District high school students into the teaching profession. This program was established in order to increase the number of underrepresented students who choose teaching as a career. Six students are chosen each year to join the program, which provides special mentoring, coursework, and practical experience related to teaching as well as scholarship assistance during their undergraduate and fifth-year credential programs.

Preparation for Multiple-Subject Credential

Students interested in a career in elementary school teaching should fulfill the requirements of the liberal studies major in the College of Arts and Sciences. Those requirements can be found in Chapter 3, College of Arts and Sciences. Students must demonstrate the subject matter competency component for the multiple-subject credential by passing the California Subject Examination for Teachers (CSET). While students may sit for the examination whether or not they majored in liberal studies, both the examination and the liberal studies degree requirements are closely aligned with the state of California's elementary curriculum framework. Therefore, Santa Clara strongly recommends that students interested in being elementary school teachers major in liberal studies. An undergraduate minor in urban education is also recommended.

Preparation for Single-Subject Credential

Students interested in a career in secondary school teaching in a particular subject matter area should fulfill the requirements of the academic major of their intended teaching specialization. California teaching credentials are available in the following subject areas: agriculture, art, business, English, health science, home economics, industrial and technology education, mathematics, modern languages, music, physical education, science, and social science. Those requirements can be found in each department in Chapter 3, College of Arts and Sciences and Chapter 4, Leavey School of Business. Students must demonstrate specific subject matter competency by passing the California Subject Matter Examination for Teachers (CSET) in the subject area they desire to teach. An undergraduate minor in urban education is also recommended.

Requirements for Multiple-Subject and Single-Subject Credentials

The minimum requirements for multiple-subject or single-subject teaching credential include:

- A bachelor's degree in a subject area from an accredited institution
- Demonstrated knowledge of the United States Constitution by completion of undergraduate coursework or passage of an approved examination
- Passage of the California Basic Educational Skills Test
- Completion of an approved program of professional education, including student teaching or internship
- Completion of a state-approved subject matter preparation program or passage of the California Subject Examination for Teachers, a subject-area competency examination, in the area one plans to teach
- Demonstrated knowledge of the various methods of teaching reading by completion of coursework or passage of an approved examination

Accelerated Teaching Credential Program

The multiple-subject or single-subject teaching credential program can be pursued at Santa Clara in conjunction with the student's undergraduate program. Undergraduate pre-teaching students can apply to either the multiple-subject or single-subject credential program in education during the winter of their junior year. Upon acceptance, students in the accelerated credential program are eligible to begin the credential coursework during the summer between their junior and senior years. Undergraduates are able to take University-based credential coursework prior to the completion of the baccalaureate degree, but must complete the bachelor's degree before initiating their field-based directed teaching. In addition to the bachelor's degree, students must pass the California Basic Educational Skills Test and demonstrate subject matter competency via the California Subject Examination for Teachers or completion of an approved subject matter preparation program before beginning the directed teaching portion of the credential. Any 200 or 300 upper-division level courses taken for the credential are not counted toward the student's undergraduate degree unit requirement.

Selected California state credential coursework may be waived by successful completion of specific undergraduate courses:

- A course in community health education by EDUC 70
- A course in teaching children with exceptional needs in the regular classroom by EDUC 138
- A course in educational policy, social foundations of education, and applied internship by EDUC 198
- A course in the psychological foundations of education by PSYC 134
- Coursework on the provisions and principles of the United States Constitution by POLI 1 or HIST 96A

Fifth-Year Teaching Credential Program

The multiple-subject or single-subject teaching credential program can be completed as a fifth year of study following the bachelor's degree and qualifies the student for a preliminary teaching credential. This 50-quarter-unit program includes graduate coursework in educational foundations, curriculum design, teaching methods, and supervised student teaching. A field experience internship option may be completed in lieu of a regular two-quarter student teaching assignment. The selection of teacher credential candidates for internships is conducted by the participating school districts in collaboration with the University. Students admitted to a credential program may choose the two-summer credential option to do their primary coursework in conjunction with the field experience internship option.

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Admission of Undergraduate Students

Santa Clara University is a selective admission university that admits new students based on potential for academic performance and contribution to the campus community consistent with the mission and Jesuit tradition of the University. Applicants are admitted as full-time, degree-seeking students. Santa Clara does not have a part-time undergraduate program option and does not enroll non-degree students except under the limited conditions outlined in Chapter 8, Academic and Administrative Policies and Regulations.

Entering freshmen and transfer students are admitted for fall term. Students are admitted for winter and spring term only by special exception with the approval of the provost.

Entering freshmen are admitted to the University and to a specific school based on the preference indicated on their admission application. Students wishing to change schools may apply for a transfer at the end of their first year of attendance.

ADMISSION OF ENTERING FRESHMEN

Admission of applicants to Santa Clara University as entering freshmen is based on their academic record in high school including course rigor, results on standardized tests, and other criteria outlined below. While Santa Clara University does not have a specific high school grade point or standardized test score requirement, potential for successful academic performance in the rigorous undergraduate program at Santa Clara is highly correlated with academic performance in high school in challenging courses and the results on standardized tests. Santa Clara also bases admission on demonstrated potential for contribution to the campus community consistent with the mission and Jesuit tradition of the University.

Applications for admission as an entering freshman are evaluated using the following criteria:

- Overall quality of high school courses and appropriately challenging coursework
- Academic performance in high school, including the cumulative grade point average from the first year of high school through the junior year of high school (grades from the first term of the senior year may also be included)
- Results of standardized tests (SAT I or ACT)
- Letter of recommendation
- Involvement in school and community activities

The basic subject requirements for admission as an entering freshman include:

- History and Social Science: 3 years
- English: 4 years
- Mathematics: 3 years required; 4 years recommended

- Laboratory Science: 2 years required; 3 years recommended
- Language Other Than English: 2 years required; 3 years recommended; 4 years preferred
- Visual and Performing Arts: 1 year recommended
- College Preparatory Electives: 1 year

Admission to freshman standing at Santa Clara depends on a continued high level of performance during the remainder of the applicant's senior year in high school and upon receipt of a high school diploma. If a significant change occurs in the applicant's academic performance during the senior year, his or her admissions status may be reevaluated by the University.

EARLY ACTION PROGRAM

Applicants to the Early Action Program must submit their applications by November 1 of their senior year. Early Action applicants are notified of the admissions decision by the end of December. Santa Clara's Early Action Program is nonbinding; consequently, students admitted under the Early Action Program are not required to withdraw other college applications and have until May 1 to confirm enrollment at Santa Clara. Early Action applicants who are competitive but not clearly admissible will be deferred and evaluated with other applicants under the Regular Decision Program.

REGULAR DECISION PROGRAM

Applicants to the Regular Decision Program must submit their applications by January 7 of their senior year. Regular Decision applicants are notified of the admissions decision by the first week of April and have until May 1 to confirm enrollment at Santa Clara.

APPLICATION PROCEDURE

Prospective freshman students must submit the following application materials to be considered for admission to Santa Clara:

- The Common Application
- The Santa Clara supplement to the Common Application
- An application fee
- One letter of recommendation from a teacher or counselor
- The Secondary School Report
- Official high school transcript
- Official SAT I or ACT scores

ADMISSION OF TRANSFER STUDENTS

Santa Clara University admits a limited number of transfer students, principally at the sophomore and junior levels, based on potential for academic success and contribution to the campus community consistent with the mission and Jesuit tradition of the University. Admission of applicants to Santa Clara University as entering transfer

students is based on their academic record at other colleges and may include evaluation of high school transcript and other criteria outlined below. While Santa Clara University does not have a specific grade point requirement, potential for successful academic performance in the rigorous undergraduate program at Santa Clara is highly correlated with prior academic performance in challenging courses. Santa Clara also bases admission on demonstrated potential for contribution to the campus community consistent with the mission and Jesuit tradition of the University.

Applicants for admission to Santa Clara University as entering transfer students must have completed at least 12 semester or 18 quarter transferable units at an accredited college or university. Applicants with fewer than 12 semester or 18 quarter transferable units should follow the application procedure for entering freshmen. Note that if a transfer applicant has not completed 30 semester or 45 quarter transferable units, he or she will be required to submit an official copy of his or her high school transcript(s) and SAT I or ACT scores.

Applicants for admission as an entering transfer student generally must have a "B" average in prior college courses to be considered for admission. Only courses that are transferable to Santa Clara are considered in the grade point average calculation. Course selection and consistency of performance by the applicant are also considered. Applicants on academic or disciplinary probation or suspension at another institution are not considered for admission.

RECOMMENDED COURSES FOR TRANSFER STUDENTS

Applicants for admission to Santa Clara University as entering transfer students enhance their chances for admission by completing as many courses that fulfill the Santa Clara Core Curriculum requirements as possible before transferring. Preference will be given to students who have completed the following courses:

College of Arts and Sciences

- English Composition (2 semesters or 2 quarters)
- College-level Mathematics (2 semesters or 2 quarters)
- Natural Science with a Lab (1 semester or 1 quarter)

Leavey School of Business

- English Composition (2 semesters or 2 quarters)
- Calculus and Analytic Geometry (2 semesters or 2 quarters)
- Accounting (2 semesters or 3 quarters)
- Microeconomics and Macroeconomics

School of Engineering

- English Composition (2 semesters or 2 quarters)
- Calculus and Analytic Geometry (2 semesters or 3 quarters)
- Chemistry (1 semester or 1 quarter)
- Physics (2 semesters or 3 quarters)

TRANSFER CREDIT

Entering transfer students generally receive credit for courses from other colleges and universities that are similar to courses offered at Santa Clara University.

- Courses from accredited institutions are generally transferable if they are similar in nature to courses listed in the Santa Clara University Undergraduate Bulletin.
- Courses from California community colleges are also generally transferable under the same conditions and if designated as transferable to the University of California.
- Courses from colleges not accredited, trade schools, extension programs, or correspondence programs do not transfer.

Transfer credit is awarded only for courses in which the student earned a grade of "C" or better. Courses taken on a pass/no pass or credit/no credit basis are not eligible for transfer. Students may transfer a maximum of 58 semester or 87.5 quarter units to the College of Arts and Sciences or the Leavey School of Business. The School of Engineering will grant credit for up to one-half of the degree requirements toward the major.

APPLICATION PROCEDURE

Prospective transfer students must submit the following application materials to be considered for admission to Santa Clara:

- The Common Application for Transfer Admission
- The Santa Clara supplement to the Common Application
- An application fee
- One letter of recommendation from a teacher or counselor
- Official transcripts from all colleges and universities attended

ADMISSION OF INTERNATIONAL STUDENTS

Santa Clara University admits international students using the same general criteria for entering freshmen and entering transfer students described in the two preceding sections. There are additional admission requirements for international students that are outlined below. In order to be eligible for enrollment, an international applicant must be accepted as a full-time, degree-seeking student.

TRANSCRIPTS

International applicants must submit a general evaluation and grade point average calculation from a certified professional evaluation service for all schools attended outside the United States. To determine which transcripts are required, please refer to the freshmen or transfer admission criteria outlined above. Certified English translations of all documents must be provided at the time of application.

EXAMINATIONS

International applicants and permanent residents must submit the results of the Test of English as a Foreign Language (TOEFL) exam when English is not their first language. The minimum acceptable TOEFL score is 79 (Internet based), 213 (computer based), or 550 (paper based). Applicants whose native language is English need not submit TOEFL scores. Failure to submit TOEFL scores when English is not one's first language may jeopardize a student's chances for admission.

FINANCIAL CERTIFICATION AND SPONSORSHIP

All international students on F-1 visas who are admitted to Santa Clara University must show sufficient funds that will cover the first year of study. Students should not submit supporting financial documents at the time of the admission application. Financial verification is required only after the student has been admitted and has chosen to enroll at the University.

Santa Clara University does not offer financial aid to international students. International students on F-1 visas are eligible to work on-campus but not to participate in the federal work-study program.

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Academic and Administrative Policies and Regulations

STUDENT RESPONSIBILITY

Students are personally responsible for knowing all academic and administrative policies and regulations affecting their program of study and for abiding by all such policies and regulations during their period of enrollment at the University. Continued enrollment is subject to compliance with the academic and administrative policies and regulations as described herein and otherwise published by the University. Failure to understand the policies and regulations does not relieve a student of his or her responsibility for adhering to the policies and regulations.

ACADEMIC POLICIES AND REGULATIONS

DEGREE REQUIREMENTS

Candidates for an undergraduate degree at Santa Clara University must complete all requirements for a bachelor's degree as set forth by the University, their college or school, and academic departments or programs. Failure to understand those requirements does not relieve a student of his or her responsibility.

The requirements for a bachelor's degree include:

- Completing a minimum number of quarter units as specified below for each degree, no more than half of which may be satisfied with approved transfer credit:
- A minimum of 175 quarter units for the Bachelor of Arts or Bachelor of Science in the College of Arts and Sciences (a minimum of 197 quarter units for engineering physics majors)
- A minimum of 175 quarter units for the Bachelor of Science in Commerce in the Leavey School of Business
- The minimum number of quarter units specified by the major department for the Bachelor of Science in the School of Engineering
- Completing a minimum of 60 quarter units of upper-division courses
- Attaining a minimum grade point average of 2.0 for all courses completed at Santa Clara University and for all courses in the academic major and any academic minor
- Meeting the residency requirement of a minimum of 45 units at the Santa Clara campus after achieving junior standing

- Fulfilling the University Core Curriculum requirements in effect at the time of initial enrollment
- Fulfilling the requirements for any declared academic majors and minors, including associated college or school requirements

Candidates for a degree must submit a completed "Candidacy Petition for the Bachelor's Degree" according to the deadlines and procedures published by the Office of the Registrar.

Academic Majors

Students must complete the requirements for a primary academic major in the College of Arts and Sciences, Leavey School of Business, or the School of Engineering, including University Core Curriculum and college or school requirements, to receive a bachelor's degree. Requirements for academic majors can be found under the departmental listings in the chapters for each respective college or school.

Students must declare their primary academic major by the end of the sophomore year. Students may declare a major at the time of initial matriculation, except in the Leavey School of Business where declaration of a major is normally made no sooner than the end of sophomore year. Students who initially matriculate without a declared major must obtain the approval of the department chair of the intended major and submit a Program Petition Form to the Drahmann Center. Students participating in study abroad or domestic public sector study programs must declare a major before participating in the program.

Students may declare a second academic major in addition to their primary major, except for students in the Leavey School of Business, who may declare only one major in that school. Students who want to declare a second major must obtain the approval of the department chair of the intended major and the college/school for the second major if different from the student's primary major and submit a Program Petition Form to the Drahmann Center. To be awarded a second major, a student must complete all requirements of the University Core Curriculum, college or school, and departmental requirements for that major. Requirements for a second major are as binding as those of a primary major and must be completed before a degree will be awarded. If a student decides to drop a second major, he or she must submit a Program Petition Form to the Drahmann Center.

Academic Minors

Students may declare an academic minor from amongst the departmental minors offered through the college or schools, the general minors in business and engineering, or one of the interdisciplinary minors offered by the University. Requirements for the academic minors can be found in the chapters of the respective college or school and in Chapter 6, Interdisciplinary Minors and Other Programs of Study.

Students who want to declare an academic minor must obtain the approval of the department chair or program director of the intended minor and submit a Program Petition Form to the Drahmann Center. Some minors may require an application process and are limited based on space available. To be awarded a minor, a student must complete all requirements of the minor as prescribed. Requirements for a minor are binding and must be completed before a degree will be awarded. If a student decides to drop a minor, he or she must submit a Program Petition Form to the Drahmann Center.

Second Bachelor's Degree

A student may earn a second bachelor's degree at Santa Clara University, but may not duplicate a degree (i.e., Bachelor of Arts, Bachelor of Science in a natural science, Bachelor of Science in a social science, Bachelor of Science in Commerce, Bachelor of Science in Engineering). Students whose first degree is from Santa Clara and who are interested in pursuing a second bachelor's degree concurrently or without interruption must have an academic record showing a strong probability of success and a proposed program of study for the second degree that fulfills the degree requirements in effect at their original date of matriculation. At least half of the units for the second degree must be completed through a Santa Clara program and be separate from those required for the first degree. Approval to pursue a second bachelor's degree must be granted by the dean of academic support services and filed with the Office of the Registrar.

If a student is returning to the University after an absence, he or she must meet the criteria outlined above, but is subject to the degree requirements in effect at the time of re-entry. Approval from the dean of academic support services is required to resume studies for a second degree after an absence.

Students whose first degree is from an institution other than Santa Clara must submit formal application for admission to the Office of Undergraduate Admissions. Students admitted for a second bachelor's degree are subject to the degree requirements in effect at the time of admission. At least half the units required for the second bachelor's degree must be earned through a Santa Clara program.

Graduation with Honors

Candidates for a bachelor's degree with a grade point average between 3.50 and 3.69 graduate cum laude (with honors); candidates with a grade point average between 3.70 and 3.89 graduate magna cum laude (with high honors); and candidates with a grade point average of 3.90 or higher graduate summa cum laude (with highest honors). Awarding of honors is based on all graded undergraduate courses attempted at Santa Clara University and courses taken elsewhere that are counted toward the fulfillment of a student's degree. Honors will not be awarded above those merited by the student's record at Santa Clara. An indication of honors at graduation contained in the commencement program is unofficial. The final determination will be made after a review of all completed undergraduate courses counted toward the degree.

Participation in Commencement

To participate in commencement, candidates for a bachelor's degree must have completed all degree requirements (or must have 10 or fewer units to complete) and a minimum overall grade point average of 2.0 as well as in all courses in their academic major(s) and any academic minor.

ACADEMIC PROGRAM POLICIES AND REGULATIONS

Course Numbering and Course Credits

Lower-division courses are numbered 1 through 99, and upper-division courses are numbered 100 through 199. In the College of Arts and Sciences and the Leavey School of Business, most lower-division courses carry 4 units of academic credit and most upper-division courses carry 5 units of academic credit. In the School of Engineering, unit values for courses vary according to the number of hours in class per week.

Change of Academic Major

A change of major within the same school or college requires the approval of the relevant department chair or program director. Students wishing to change their academic major within a school must submit a Program Petition Form to the Drahmann Center.

Change of School

Entering freshmen are admitted to the University and to a specific school based on the preference indicated on their admission application. Students wishing to change schools within the University may not apply for such a change until the end of their first year of attendance.

Changes between schools may be limited by the availability of space within the school and the specific academic major. Students wishing to change schools must meet the admittance criteria of the school and complete the application process specified by that school. Upon acceptance by the school, the student must submit a completed Program Petition Form to the Drahmann Center.

Repetition of Courses

Students may only repeat a course in which they have received a grade of less than "C–." In such cases, the grades of both the original and the repeated course are included in the calculation of the student's grade point average, but units are awarded toward graduation only once for each course passed. Certain courses, such as special topics courses and performance courses, are repeatable, and students will receive a grade and units for each successful completion. Students should consult the chair of the department in which the course is offered to confirm that a given course may be repeated for credit.

Independent Study

Students may pursue independent study through directed reading, directed research, internships, practica, or cooperative education. To qualify, a student must have demonstrated a sufficient knowledge of the academic discipline involved to make independent study both possible and beneficial. No more than 20 units of independent study may be used to satisfy graduation requirements, and no more than 5 units of independent study may be taken per term. Students must enroll for the term in which the independent study occurs.

Directed reading and directed research are limited to upper-division students who undertake a research project or other well-defined study beyond the scope of a regular course under the supervision of a faculty member. Such work should be comparable to that required for courses of equivalent unit value.

Students can obtain practical learning experience through internships, cooperative education, and practica. Internships and cooperative education are approved work experiences in a non-classroom environment in industry, government, or other setting, generally available only to upper-division students. Students who enroll in an internship or cooperative education experience for academic credit must fulfill specified academic requirements in addition to the responsibilities expected by the organization hosting the internship or cooperative education experience. Practica provide practical experience in a discipline-specific field experience or an approved University program activity, such as participation on the school newspaper. Practica are generally available only to upper-division students, but some practicum experiences are available to lower-division students who meet specified eligibility criteria.

Students wishing to enroll in an independent study course must initiate the request for independent study with the appropriate faculty member and with the Career Center for cooperative education experiences. The appropriate form, with the required materials and other approvals, must be submitted to the Drahmann Center for final approval prior to registering for the course.

Challenging Courses

Students may challenge certain courses to satisfy specific subject requirements for graduation. A student may petition to challenge any course listed in the Undergraduate Bulletin except those involving laboratory, studio, or specialized group work and those whose descriptions in the catalog are followed by the letters NCX. No more than one course may be challenged each term. Although course requirements may be fulfilled by challenging a course, a successful challenge neither earns units toward the total needed for graduation nor contributes to the fulfillment of the residency requirements.

In order to be eligible to challenge a course, a student must have completed at least one term at Santa Clara, have a cumulative grade point average of at least 3.3, and receive permission of the faculty member and the chair of the department in which the course is offered. Only currently enrolled students are eligible to challenge a course.

To challenge a course, the student takes a special examination on the material covered by that course and meets any additional requirements specified by the department chair. Challenge examinations are arranged by the department chair after the student files a Petition for Credit by Examination with the Office of the Registrar and pays the applicable fee.

Course Requirements and Attendance

Students are responsible for completing all course requirements as set forth by the instructor. Class attendance expectations and consequences for absences from class are left to the discretion of individual instructors. Students are accountable for all course assignments, whether or not the assignments were announced during an absence.

Final Examinations

A cumulative final examination, if given in a course, must be given on the date and time scheduled by the Office of the Registrar. If the final examination is a take-home exam, it may not be due before the scheduled final examination time. Exceptions to this policy require approval of the department chair and dean.

REGISTRATION POLICIES AND REGULATIONS

Enrollment and Registration for Classes

Students must be officially registered for all classes in accordance with the regulations, procedures, and dates in the *Schedule of Classes.* Registration is subject to full payment of tuition, room and board charges, and other fees associated with enrollment. The University reserves the right to deny registration to any student for reasonable cause. A student's eligibility to register for classes is subject to the clearance of any holds on the student's record for academic, financial, student conduct, or other reasons. Santa Clara students may not be concurrently enrolled at another college or university except for extraordinary reasons with the approval of the Drahmann Center.

Students register for classes via University e-campus during the time assigned by the Office of the Registrar. Students who do not complete registration during the initial registration period may do so during the published late registration period for the term. Initial registration for a term or class additions are not accepted after the last day of the late registration period.

During the first week of each term, students may change their original registration schedule by adding and dropping classes in accordance with the procedures established by the Office of the Registrar. During the second, third, and fourth weeks of the term, a student may drop a class without receiving a mark of "W" for the class on their academic record. From the fifth week to the end of the seventh week of the term, a student may drop a class and receive a mark of "W" for the class on their academic record. Students may not drop classes after the last day of the seventh week of the term. Students who do not complete a course and do not drop the class in accordance with the required procedures will receive an appropriate grade in the class.

Students who have not earned 44 units, including transfer credit, may not enroll in upper-division courses without the written approval of the instructor and the chair of the department offering the course. This restriction does not apply to upper-division foreign language courses for which a student has demonstrated sufficient proficiency or to engineering courses in the major program.

Students may not sit in a class without formally enrolling in the class. Sitting in a class or obtaining an instructor's signature on an add form does not constitute enrollment.

Registration must be completed in accordance with the regulations, procedures, and dates in the *Schedule of Classes.*

Students who do not attend the first day of a class are subject to administrative cancellation of their enrollment in that class in order to make space available to other students. A student who must miss the first day of a class and wishes to remain in the course should contact the instructor in advance. No student who misses the first day of a class should assume that they have been dropped from the course. Students are responsible for checking the status of their enrollment in all courses prior to the end of the late registration period.

Unit Overload

Students may enroll for no more than 19 units unless they are in the University Honors Program, their cumulative grade point average at Santa Clara is at least 3.3, or they have upper-division status and obtain approval from the Drahmann Center. One 2-unit course or two 1-unit courses are not counted as overload units. Students who meet the criteria above will not be permitted to register for more than 25 units without approval of the Drahmann Center. Students may register for courses that result in overload units only during the late registration period.

Auditing Courses

Students admitted to degree status at Santa Clara may audit one course in addition to their regular course load in a term. A maximum of three courses may be audited during a student's academic career. Permission to audit a course will be given only at the end of the late registration period and only if space is available in the class. No credit is assigned for an audited course, but the successful completion of an audit will be indicated on a student's transcript by the notation "AUD."

Administrative Cancellation of Course Enrollment

Students who enroll in a course for which they are not eligible are subject to administrative cancellation of their enrollment in that course. Prior to the end of the late registration period, an instructor may notify the University registrar to drop freshmen who registered in upper-division courses, to drop students who have not satisfied the prerequisites for the course, or to drop students lacking the instructor permission required for certain courses.

Withdrawal from the University

Students who wish to withdraw from the University during a quarter or at the conclusion of any quarter must complete a withdrawal form and an exit interview in the Drahmann Center. If the formal requirements for withdrawal are met, the student's registration will be canceled without further academic penalty. Students who leave the University during a quarter without withdrawing in accordance with the required procedures will receive an appropriate grade in all courses in which they were registered and are not eligible for a refund of tuition or other fees.

Students who withdraw from the University are responsible for any outstanding financial obligations with the University. Students who used deferred payment plans or student loans during their attendance at the University must clear their financial obligations with the Financial Aid Office and the Bursar's Office. Students who have unpaid bills or other unsettled financial obligations with the University will not receive academic transcripts or be eligible for re-enrollment until they have cleared all such obligations.

Re-enrollment at the University

A student who withdrew from the University is eligible to re-enroll without special permission under the following conditions:

- The student left the University in good academic standing.
- The student has no outstanding financial obligations with the University.
- The student plans to return to the same college or school at the University.
- The student is returning within five years of the date of their withdrawal.

Students who do not meet the conditions above must seek permission to re-enroll from the dean of academic support services. Re-enrolling students are subject to degree and curriculum requirements in the Undergraduate Bulletin in effect at the time of re-entry.

Students wishing to re-enroll must notify the Office of the Registrar in writing of their intent to return using the Returning Student Form and should consult with a University advisor in the Drahmann Center to review their academic plans. Students on leave who have attended another college or university are only permitted to transfer in a maximum of 10 units of elective credit and are required to forward to the Office of the Registrar an official transcript of all work completed during their absence.

GRADING POLICIES AND REGULATIONS

Grading

Grades are assigned by the instructor to reflect the quality of a student's work. The University uses the following grades:

A: Excellent

B: Good

C: Adequate

D: Barely Passing

F: Not Passing

P: Pass

NP: No Pass

The grades A, B, C, and D may be modified by (+) or (–) suffixes, except that the grade of A may not be modified by a (+) suffix. Grade point values per unit are assigned as follows:

A = 4.0

A– = 3.7

B+ = 3.3

B = 3.0

B– = 2.7

C+ = 2.3

C = 2.0

C– = 1.7

D+ = 1.3

D = 1.0

D– = 0.7

F = 0

Unit credit, but not grade point credit, is awarded when the grade of "P" is assigned. Unit credit is not awarded when the grade of "NP" is assigned.

The University also uses the following marks for which no unit credit or grade point value is granted:

I: Incomplete

N: Continuing work

NS: No Show

AUD: Audit

W: Withdrawn

Pass/No Pass (P/NP)

A grade of "P" signifies that the quality of work done is equivalent to a letter grade of "C" or higher, while a grade of "NP" denotes work at the level of "C–" or lower. A maximum of six courses taken under the pass/no pass option in which the student receives a mark of "P" can be used to fulfill the unit requirements for graduation.

Some courses are offered only on a pass/no pass basis, and a student with junior or senior standing and a declared major may choose to take an elective course on a pass/no pass basis. Students may enroll in only one course per quarter on a pass/no pass basis. Students may choose the pass/no pass option for a class through the end of the fourth week of classes, but may not change the grading option after that date.

Incomplete (I)

The mark of "I" (incomplete) may be assigned by the instructor when a student does not complete some essential portion of the assigned work in a class because of extraordinary circumstances beyond the student's control. The unfinished work must be completed and given to the course instructor within three weeks of the beginning of classes in the next scheduled term (not the student's next term of enrollment), excluding summer session, unless extraordinary circumstances require an extension. A request for an extension must be submitted in writing by the instructor and approved by the University registrar within the original three-week period. Extensions shall not be for longer than two academic quarters after the mark of "I" was assigned, excluding summer session. An incomplete that has not been completed within the specified deadline or has not received an approved extension will be converted to a grade of "F."

Continuing Work (N)

The mark of "N" (continuing work) may be assigned by an instructor when course requirements span more than one term. When the course requirements are completed, the instructor assigns a standard grade. A student may not graduate and receive a degree with a mark of "N" on their academic record.

No Show (NS)

The mark of "NS" (No Show) may be assigned by an instructor when a student never attends a class and does not drop the class. A mark of "NS" cannot be changed to any other grade or mark after it is assigned by the instructor. A mark of "NS" is included in the student's academic record and appears on the student's transcript, but is not included in the calculation of the student's grade point average. No adjustment in tuition will result from the awarding of a mark of "NS" in a class.

Audit (AUD)

The mark of "AUD" is assigned when a student enrolls in a class on an audit basis. A mark of "AUD" cannot be changed to any other grade.

Withdrawn (W)

The mark of "W" is assigned by the Office of the Registrar when a student completes the formal requirements dropping a class or withdrawing from the University. A mark of "W" cannot be changed to any other grade or mark. A mark of "W" is included in the student's academic record and appears on the student's transcript, but is not included the calculation of the student's grade point average.

Grade Point Average

A student's grade point average is determined by multiplying each grade point value by the number of quarter units assigned to the course, adding these grade point units from all courses taken, and dividing this sum by the total number of quarter units for which letter grades were reported. Grade reports are posted at the end of each quarter and indicate both the grade point average earned by the student during the quarter and the cumulative grade point average earned by the student for all courses completed to that point.

Grades earned in courses in SCU-operated or -affiliated study abroad or domestic study programs are included in the calculation of a student's grade point average. Grades earned in courses at other institutions accepted for transfer credit are not included in the calculation of a student's grade point average, but will be considered when determining honors at graduation.

Evaluation of Progress

Grades are available at the end of the term via University e-campus. Faculty members are expected to apprise students of their course progress at reasonable intervals. Some measurements of progress should take place in time to enable students to make reasonable decisions with respect to the fourth-week and seventh-week withdrawal deadlines.

Change of Grade

Only the faculty member responsible for a course may assign grades. All grades become final when they have been assigned and reported to the Office of the Registrar. A faculty member may report a correction of a final grade to the Office of the Registrar only if a clerical or procedural error was made in assigning, transmitting, or recording the original grade. A grade may not be changed as a result of re-evaluation, re-examination, or the submission of additional work after the term ends. Any grade change must have the approval of the department chair and the associate dean of the student's school or college. No grade may be changed after one year.

Student Appeals of Grades

Grades are not negotiable. There should be no questioning of a faculty member's academic judgment on a grade. In registering for a class, students implicitly agree to allow the faculty member to make a qualitative judgment of their command of the subject matter, which will be expressed as a letter grade. Any questioning or appeal of a grade should therefore be limited to procedure, e.g., to computational errors or failures to follow grading policies set forth in the syllabi.

Any system of grade-appeal should protect the rights of faculty members as well as the rights of students. The results of any system of grade-appeal should not be binding upon the faculty member. Any decision to initiate a change of grade should remain the faculty member's. Any procedural complaint regarding a change of grade must be initiated within four weeks of the beginning of the next scheduled term, not including summer session.

A student with a complaint must first discuss the matter with the faculty member. If the matter is not resolved at this level, the student may then take the matter to the chairperson of the department involved. The chairperson will discuss the case with the faculty member and may recommend that the faculty member review the grade. Upon the request of the student, the dean will proceed in similar fashion. Should the student request it, the dean will pass the matter on to the provost.

This process of review gives the chairperson, dean, and provost the right to discuss the matter with the faculty member, and if they think it appropriate, request that the faculty member review the grade. Any recommendations made will not be binding upon the faculty member against whom the complaint is lodged. The decision to change a grade remains with the faculty member.

ACADEMIC STANDING AND STUDENT CLASSIFICATION

Student Classification

The University only admits students to its undergraduate degree programs on a full-time basis. Students who have not been admitted to degree status at the University may register for classes in accordance with the policies and regulations outlined in the section of this chapter covering non-degree students.

The classification of students is determined by the number of quarter units completed with passing grades. Lower-division students are considered freshmen if they have completed fewer than 44 units and sophomores when they have completed at least 44 units but fewer than 88 units. Upper-division students are considered juniors when they have completed at least 88 units but fewer than 132 units and seniors when they have completed at least 132 units.

If a student is enrolled for 12 or more units in a given term, they have full-time status for academic purposes. Students enrolled for less than 12 units have part-time status for that term and may not qualify for all University activities and benefits, such as eligibility for financial aid, on-campus housing, and intercollegiate athletic competition. Continuing enrollment at the University in part-time status requires approval by the dean of academic support services.

Academic Standing

To be in good academic standing at the University, a student must normally be enrolled for 12 or more units, must maintain a cumulative grade point average of at least 2.0 based on all courses taken at Santa Clara, and must have completed at least a minimum number of units as specified below. Failure to meet these requirements may result in academic probation or disqualification from future registration at the University.

Students in their last term of enrollment before completing a degree may be classified as a full-time student when enrolled for less than 12 units.

Academic Probation

Students who have completed at least three quarters of academic work at Santa Clara or elsewhere are subject to academic probation if their cumulative grade point average is lower than 2.0 based on all courses taken at Santa Clara. Students who have not yet completed three quarters of academic work at Santa Clara or elsewhere normally are not subject to academic probation as long as their cumulative grade point average is at least 1.6 based on all courses taken at Santa Clara.

Students are also subject to academic probation if they fail to make satisfactory progress toward their degree as defined below:

- Completing at least 36 quarter units in the previous three quarters of residency

OR

- Completing at least 36 quarter units by the end of the third quarter of residency

- Completing at least 76 quarter units by the end of the sixth quarter of residency
- Completing at least 115 quarter units by the end of the ninth quarter of residency
- Completing at least 160 quarter units by the end of the twelfth quarter of residency

Academic Disqualification

Students are subject to disqualification from further registration at the University for any of the following:

- Remaining on academic probation for more than two consecutive quarters without improvement
- Failing to maintain a cumulative grade point average of at least 2.0

OR

- Completing fewer than 30 quarter units by the end of the third quarter of residency
- Completing fewer than 64 quarter units by the end of the sixth quarter of residency
- Completing fewer than 100 quarter units by the end of the ninth quarter of residency
- Completing fewer than 150 quarter units by the end of the twelfth quarter of residency

Reinstatement to the University

Reinstatement to the University after disqualification is rarely permitted and requires favorable action by the dean of academic support services in consultation with the dean of the student's college or school. Requests for reinstatement are made to the dean of academic support services and must include a description of any activities during the period of disqualification that would indicate that an improved academic performance can be expected in the future. A student generally may not apply for reinstatement within a year of the date of disqualification. The request for reinstatement will be considered only if the student's academic deficiencies can be corrected within a reasonable time.

ACADEMIC CREDIT EVALUATION

Santa Clara awards credit based on the Advanced Placement Program, the International Baccalaureate Program, courses completed at other colleges and universities, and courses completed in University-approved study abroad and domestic study programs using the criteria outlined herein. Students may not take a course for credit for which they have received advanced placement, International Baccalaureate, or transfer credit.

Advanced Placement Credit

Santa Clara participates in the Advanced Placement Program to recognize college-level academic achievement prior to matriculation and to encourage students to pursue advanced studies in their areas of interest. Credit or placement is determined by the appropriate department based on review of the student's advanced placement scores, sometimes in the context of supplemental departmental examinations. Students will be notified of advanced placement credit upon matriculation at the University.

The following chart indicates the subject examination, required scores, and Santa Clara credit granted under the Advanced Placement Program under the current SCU Undergraduate Core Curriculum.

ADVANCED PLACEMENT EXAMINATION	SCORE REQUIRED	UNIT CREDIT	COURSE WAIVED
Art, History	4, 5	4.0	Departmental determination
Art, Studio Drawing	4, 5	4.0	Departmental determination
Art, Studio General	4, 5	4.0	Departmental determination
Biology	4, 5	4.0	University Core Non-Laboratory Science
Chemistry	3	5.0	CHEM 11
Chemistry	4	10.0	CHEM 11 and CHEM 12
Chemistry	5	10.0 or 15.0	CHEM 11 and CHEM 12; Credit for CHEM 13 granted after completing CHEM 99
Chinese Language and Literature	4, 5	4.0	CHIN 21
Comparative Government and Politics	4, 5	4.0	POLI 2
Computer Science A	4, 5	4.0	COEN 11, OMIS 30, OMIS 34, or CSCI 10
Computer Science AB	3, 4	4.0	COEN 11, OMIS 30, OMIS 34, or CSCI 10
Computer Science AB	5	4.0 or 8.0	OMIS 30 or OMIS 34; or COEN 11 and COEN 12; or CSCI 10 and CSCI 61
Economics (macro)	4, 5	4.0	ECON 2
Economics (micro)	4, 5	4.0	ECON 1
English: Language and Composition	4, 5	4.0	Elective Credit
English: Literature and Composition	4, 5	4.0	Elective Credit
Environmental Science	4, 5	4.0	ENVS 11
European History	4, 5	4.0	HIST 23
French Language	4, 5	4.0	FREN 21
French Literature	4, 5	4.0	FREN 22
German Language	4, 5	4.0	GERM 21
Italian Language and Literature	4, 5	4.0	ITAL 21
Human Geography	4, 5	4.0	ANTH 50 or SOCI 50
Japanese Language and Literature	4, 5	4.0	JAPN 21
Latin, Vergil	4, 5	4.0	Elective Credit
Latin, Literature	4, 5	4.0	Elective Credit
Math: Calculus AB	4,5	8.0	MATH 11 and MATH 12; or MATH 30 and MATH 31
Math: Calculus BC	3	4.0	MATH 11 or MATH 30

Math: Calculus BC	4, 5	12.0	MATH 11, MATH 12 and MATH 13 or MATH 30, MATH 31 and MATH 13
Music: Theory	4, 5	6.0	MUSC 1 or MUSC 1 and MUSC 1A with departmental approval and an appropriate score on the department placement exam
Physics B	4, 5	4.0	PHYS 11
Physics C: Mechanical	4, 5	4.0	PHYS 31
Physics C: Electrical and Magnetic	4, 5	4.0*	PHYS 33
Psychology	4, 5	4.0	PSYC 2
Spanish Language	4, 5	4.0	SPAN 21
Spanish Literature	4, 5	4.0	SPAN 22
Statistics	4, 5	4.0	MATH 8 or OMIS 40
U.S. Government and Politics	4, 5	4.0	POLI 1
U.S. History	4, 5	4.0	HIST 96A or HIST 96B
World History	4, 5	4.0	Departmental determination

** Credit for laboratory to be determined*

International Baccalaureate

Santa Clara University recognizes the International Baccalaureate Program for admission and advanced placement and often awards academic credit for grades of six or seven in the higher level examinations. No credit is awarded for subsidiary level examinations. Final decisions on advanced placement and academic credit are made individually by the appropriate academic department in consultation with the Drahmann Center and the University registrar.

Units Taken at Other Institutions

Credit is awarded for coursework completed at other colleges and universities subject to certain limitations. Courses from accredited institutions are generally transferable if they are similar in nature to courses listed in the Santa Clara University *Undergraduate Bulletin.* Courses from California community colleges are also generally transferable under the same conditions and if designated as transferable to the University of California. Courses of a trade or technical nature do not transfer. Courses from colleges not accredited, trade schools, extension programs, or correspondence programs do not transfer.

Students can receive credit for coursework completed at other colleges and universities prior to matriculation at Santa Clara for no more than half of the total number of quarter units required for the specific Santa Clara degree. After enrolling at Santa Clara, students can receive credit for coursework completed at other colleges and universities for no more than 10 quarter units of free electives, subject to the limitation that no more than half of the total number of quarter units required for a Santa Clara degree can be earned at another institution. Transfer credit earned after initial enrollment at Santa Clara may not be used to fulfill University Core Curriculum, college or school, department, or program requirements.

Transfer credit for all coursework completed at other colleges and universities requires approval from the Drahmann Center and the chair of the department offering the equivalent Santa Clara course. The student must have earned a grade of "C" or better in a course for transfer credit to be granted. Courses taken on a pass/no pass or credit/no credit basis

are not accepted as transfer credit. Grades for units earned at other institutions are not included in a student's Santa Clara academic history or in the calculation of the Santa Clara grade point average.

Study Abroad and Domestic Study Programs

Units and grades earned for coursework in University-operated study abroad programs, University-affiliated study abroad programs, University study abroad exchange programs, and University-affiliated domestic study programs are included in a student's Santa Clara academic history. Units earned in approved study abroad and domestic study programs may be used to fulfill University Core Curriculum, college or school, department, or program requirements subject to prior approval by the appropriate dean's office, department chair, or program director. However, such units do not satisfy the University residency requirement. Grades earned in approved study abroad and domestic study programs are included in the calculation of the Santa Clara grade point average.

Units earned for coursework in study abroad and domestic study programs not operated by or affiliated with the University are accepted only as transfer credit and are subject to the policies governing units taken at other institutions.

NON-DEGREE STUDENTS

The Santa Clara University undergraduate program is designed primarily for full-time, degree-seeking students. To maintain the University's commitment to its primary undergraduate constituency of degree students, non-degree students are permitted to register in accordance with the following policies subject to space availability in classes.

Santa Clara Alumni

Santa Clara alumni who have been awarded a degree from Santa Clara University may enroll in undergraduate classes on a for-credit basis or may audit undergraduate classes. Alumni may enroll for no more than 10 units per term on a for-credit basis, or they may audit one course per term. They are certified for enrollment by the Office of the Registrar and register for classes during the late registration period of the term.

University Employees

University employees who are students at another accredited college or university may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution. They may not enroll concurrently at Santa Clara and another college or university. University employees who are not currently admitted to degree status are certified for enrollment by the Office of the Registrar and may audit one course per term.

Students from Other Colleges and Universities

Students from another accredited college or university may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution. They may not be enrolled concurrently at Santa Clara and another college or university. Students from other colleges and universities may enroll for no more than three quarters, not including summer session and are not eligible to audit classes. Students from other colleges and universities are certified for enrollment by the Drahmann Center and the Office of the Registrar and register for classes during the late registration period of the term.

Students from Other Colleges and Universities Participating in SCU Exchange Programs

Students from other colleges and universities participating in SCU exchange programs may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution. They are not eligible to audit classes. Students from other colleges and universities participating in exchange programs are certified for enrollment by the International Programs Office and the Office of the Registrar.

Students from Other Institutions Enrolling in SCU Study Abroad Programs

Students from other colleges and universities who meet the applicable eligibility requirements for SCU study abroad programs may enroll in undergraduate classes at Santa Clara if they are in good standing and have a cumulative grade point average of "C" or better at their home institution. They are not eligible to audit classes. Students from other colleges and universities enrolled in SCU study abroad programs are certified for enrollment by the International Programs Office and the Office of the Registrar.

Young Scholars

High school students who meet the applicable eligibility requirements for the Young Scholars program may enroll in undergraduate classes. Young Scholars may enroll for no more than 10 units per term and are not eligible to audit classes. Young Scholars are certified for enrollment by the appropriate Dean's Office and the Office of the Registrar after receiving permission of the faculty member to enroll in a specific class.

ACADEMIC INTEGRITY

The University is committed to academic excellence and integrity. Students are expected to do their own work and to cite any sources they use. A student who is guilty of a dishonest act in an examination, paper, or other work required for a course, or who assists others in such an act, may, at the discretion of the instructor, receive a grade of "F" for the course. In addition, a student found guilty of a dishonest act may be subject to sanctions, up to and including dismissal from the University, as a result of the student judicial process as described in the *Student Handbook*. A student who violates copyright laws, including those covering the copying of software programs, or who knowingly alters official academic records from this or any other institution is subject to similar disciplinary action.

Academic Integrity Protocol

Allegations within the Context of a Course

These procedures are intended to protect the integrity of the instructional program and of student academic achievement. Any member of the Santa Clara University community with a suspicion or evidence of academic dishonesty of some kind as described in the Student Conduct Code (e.g., plagiarism, falsification of data, misrepresentation of research, or the use of prohibited materials during an examination, and other acts generally understood to be dishonest by faculty or students in an academic context) may initiate an allegation of student academic dishonesty. The following describes procedures for resolution by due process.

If the allegation arises within the context of a course or academic assignment, its resolution begins with the instructor responsible for that course or assignment, who informs the student of the suspicion. If the instructor judges on the basis of available evidence that an academic violation has occurred, the instructor applies an academic sanction and notifies the student of the reason for the academic sanction. The instructor decides on the severity of the academic sanction (e.g., refusal to accept an assignment, "F" on the particular assignment, or "F" for the entire course). The instructor will report in writing to the department chair and the Office of Student Life what violation of academic integrity has occurred and what academic sanction has been applied. The Office of Student Life will pursue the matter as a violation of the Student Conduct Code through the University judicial process. This process is not intended to limit academic freedom.

Appeal Process for Academic Sanctions

If, after discussion with the instructor concerning the academic sanction applied, the student wants to challenge the instructor's decision, the student will contact the chair of the department in which the course is offered. If the instructor is the department chair, then the appeal is made to the dean of the school or college in which the course is offered or his/her designate, and the dean or designate refers the case to the chair of a closely related department.

The department chair hearing the appeal has the option to convene an ad hoc panel if he or she believes that the complexity of the case warrants doing so. The student suspected of committing academic dishonesty has the right to bring a support person whose only role is to accompany the student to the hearing. The panel will include two full-time faculty members from the department in which the course was offered, one full-time faculty member from a closely related department, and two students who are trained student judicial board members. Staff in the Office of Student Life will arrange for the participation of the student panel members. The charge of the panel is to study all previously considered and newly developed evidence, review statements of all parties concerned, interview all parties concerned, and make a recommendation to the department chair.

The parties involved have the right to file an objection to the appointment of a particular faculty member or student to the ad hoc panel. This objection must be based upon a belief that the named faculty member or student is unable to conduct an impartial evaluation and therefore will not review the case in an impartial manner. The objection is filed with the chair hearing the appeal who will make a ruling on this objection. If necessary, the chair will then appoint a different faculty member or student.

After reviewing all relevant materials and information, including the recommendation of the ad hoc panel when one is convened, the department chair will consider all evidence available, confer with all parties concerned, inform all parties of her or his recommendation regarding the alleged violation, and report the recommendation to the student and the Office of Student Life. However, final responsibility for assigning grades remains with the instructor of the course.

Decisions may only be appealed to one level above the instructor. All proceedings are intended to be confidential.

If the student wishes to withdraw from the course but the instructor's signature is required for the withdrawal process, the instructor may refuse to sign an approval of the withdrawal.

University Judicial Process

When the Office of Student Life receives the report, the assistant dean will meet with the student to discuss the relevance of the violation to the Student Conduct Code. Whether

further judicial sanctions are applied or not, the report of academic dishonesty will remain on file in the Office of Student Life for the remainder of the student's enrollment at Santa Clara University. The student involved has the right to include a statement as part of these files.

If it is ruled that the student committed an academic integrity violation, the Office of Student Life will administer a judicial sanction that would range from a letter of warning to expulsion from the University. The severity of the judicial sanction depends on the severity of the circumstances, including the student's judicial history and previous academic integrity violations.

Allegations Outside a Course

If the allegation involves a situation outside the context of a course, resolution begins with the Office of Student Life. The assistant dean will confer with all parties concerned. After hearing all evidence and conducting further investigation as needed, the assistant dean will either hear the case or refer it to a judicial board in accordance with the University Judicial Process. The outcome of the hearing will be communicated to those involved.

ADMINISTRATIVE POLICIES AND REGULATIONS

CLERY ACT

In accordance with the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, Santa Clara University annually collects information about campus crimes and other reportable incidents as defined by the law. Information presented in compliance with this act is made available to assist current and potential students and employees in making informed decisions regarding their attendance or employment at the University. These reports and other information about the law are available on the Campus Safety Web site. It is the policy of Santa Clara University that the campus community will be informed on a timely basis of all reports of crime and other information affecting the security of our campus and the personal safety of our students, faculty, staff, and guests. The director of Campus Safety Services is responsible for gathering, recording, and disseminating such information and for decisions regarding the content, time, and manner of distribution.

Depending on the circumstances, the director of Campus Safety Services may request the assistance of various University departments and administrators in carrying out this responsibility.

COMMUNICATION BY THE UNIVERSITY TO UNDERGRADUATE STUDENTS

The University will communicate with undergraduate students through a variety of formats. Information that is sent to undergraduate students from the University via their campus mail box, local address, or their Santa Clara e-mail address is considered official communication and should be treated as such. Students are asked to check their campus mailbox and their Santa Clara e-mail account on a daily basis, and are responsible for reading and responding to the information they receive from the University. The University urges undergraduate students to use their Santa Clara e-mail address as their primary e-mail; students who will not be checking that address regularly should forward their email to their preferred e-mail account.

CONSENSUAL RELATIONS BETWEEN EMPLOYEES AND STUDENTS

In addition to prohibiting sexual harassment under the Policy on Unlawful Harassment and Unlawful Discrimination, the University prohibits any consensual dating, romantic, or sexual relationship between an employee and a student over whom that employee has any instructional, supervisory, advising, or evaluative responsibility. Such a relationship is fraught with problems, including the potential for exploitation, favoritism, and conflict of interest. The appearance of impropriety or unfairness may also adversely affect the learning and work environment for other students and employees. This policy applies to faculty, staff, and student employees. Employees who violate this policy are subject to sanctions for misconduct under the policies of the *Faculty Handbook, Staff Policy Manual,* or *Student Employment Handbook,* as appropriate to their employment status. Employees or students with questions about this policy should contact the Office of Affirmative Action or the Department of Human Resources.

DRUG-FREE WORKPLACE AND SCHOOL PROGRAM

Santa Clara University is committed to protecting the safety, health, and well-being of all faculty, staff, and students as well as other individuals in the University community. The University recognizes that alcohol abuse and drug use pose a significant threat to our community and our mission as a University. In accordance with the requirements of the Drug-Free Workplace Act of 1988 and the Drug-Free Schools and Communities Act Amendments of 1989, the University has established the following program and distributes information related to this program on an annual basis to all faculty, staff, and students.

It is the goal of Santa Clara University to maintain a drug-free workplace and campus. The unlawful manufacture, distribution, dispensation, possession, and/or use of controlled substances or the unlawful possession, use, or distribution of alcohol is prohibited on the Santa Clara University campus, in the workplace, or as part of any of the University's activities. This includes the unlawful use of controlled substances or alcohol in the workplace even if it does not result in impaired job performance or in unacceptable conduct.

The unlawful presence of any controlled substance or alcohol in the workplace and campus itself is prohibited. The workplace and campus are presumed to include all Santa Clara premises where the activities of the University are conducted.

Violations will result in disciplinary action up to and including termination of employment for faculty and staff or expulsion of students. A disciplinary action may also include the completion of an appropriate rehabilitation program. Violations may also be referred to the appropriate authorities for prosecution.

The program information is distributed on an annual basis to all faculty, staff, and students. New staff employees are given a copy at New Employee Orientation. New faculty employees are given a copy at New Faculty Orientation. The program is reviewed at least biennially by the Office of Student Life, Affirmative Action Office, and the Department of Human Resources.

WITHDRAWAL DUE TO MEDICAL OR MENTAL HEALTH-RELATED REASON

A student who has an illness, injury, or psychological or psychiatric disorder and decides to temporarily withdraw from the University may do so at any time. The student is responsible for using standard withdrawal procedures and notifying the Office of the Registrar in writing when withdrawing and returning to the University.

STUDENT RECORDS AND RELEASE OF INFORMATION

The Family Educational Rights and Privacy Act of 1974 (FERPA) protects the confidentiality of the University records of Santa Clara University students. Within the provisions of FERPA, the University recognizes the rights of an admitted student once the student registers for classes. T he University is authorized under provisions of the Act to release directory information to any person on request, unless a student explicitly requests in writing that the University not do so and keep directory information confidential.

A student's directory information is designated as follows:

- Name
- Address (campus, local and/or permanent; e-mail)
- Telephone number
- Date and place of birth
- Photographic image
- Major field of study, classification, dates of attendance, expected graduation date, degrees, and honors received
- Most recent previous educational institution attended
- Participation in officially recognized activities, including intercollegiate athletics
- Height and weight of participants on intercollegiate athletic teams

During the registration period and throughout the academic year, students may request in writing through the Office of the Registrar that directory information be kept confidential. Once filed, the request remains in effect until the beginning of the next academic year or a shorter period if designated by the student. Graduating students must notify the Office of the Registrar in writing to remove the nondisclosure notation from their record.

Certain records are excluded by law from inspection, specifically those created or maintained by a physician, psychiatrist, or psychologist in connection with the treatment or counseling of a student. Parents' financial information, including statements submitted with scholarship applications, is also excluded by law from inspection. Third parties may not have access to educational records or other information pertaining to students without the written consent of the student about whom the information is sought.

Former or current borrowers of funds from any Title IV student loan program should note carefully that requests for nondisclosure of information will not prevent the University from releasing information pertinent to employment, enrollment status, current address, and loan account status to a school lender, subsequent holder, guarantee agency, the United States Department of Education, or an authorized agent.

Students have the right to inspect and review their educational records at the following offices:

- Official academic records, including application forms, admission transcripts, letters of acceptance, and a student's permanent academic record are on file and maintained in the Office of the Registrar
- Working academic files are also maintained by the Drahmann Center
- Records related to a student's nonacademic activities are maintained in the Office of Student Life
- Records relating to a student's financial status with the University are maintained in the various student financial services offices

Students have the right to request the amendment of their educational records to ensure that they are not inaccurate, misleading, or otherwise in violation of the student's privacy or other rights. Students may direct complaints regarding academic records to the dean of the college or school in which they are enrolled or to the University registrar. In addition, students have the right to file a complaint with the United States Department of Education concerning alleged failures by the University to comply with the requirements of the Act. Written complaints should be directed to the Family Policy Compliance Office, Department of Education, 400 Maryland Avenue SW, Washington, D.C. 20202-5920.

NONDISCRIMINATION POLICY

Santa Clara University prohibits discrimination and harassment on the basis of race, color, religious creed, sex, gender, sexual orientation, religion, marital status, registered domestic partner status, veteran status, age, national origin or ancestry, physical or mental disability, medical condition including genetic characteristics, or any other consideration made unlawful by federal, state, or local laws in the administration of its educational policies, admissions policies, scholarships and loan programs, athletics, or employment-related policies, programs, and activities; or other University-administered policies, programs, and activities.

Additionally, it is the University's policy that there shall be no discrimination or retaliation against employees or students who raise issues of discrimination or potential discrimination or who participate in the investigation of such issues. The University will provide reasonable accommodations for the known physical or mental limitations of an otherwise qualified individual with a disability under the law.

Inquiries regarding equal opportunity policies, the filing of grievances, or requests for a copy of the grievance procedures covering discrimination and harassment complaints should be directed to Deborah Hirsch, EEO/Diversity Director, Office of Affirmative Action, Loyola Hall Second Floor, Santa Clara University, Santa Clara, CA 95053, (408) 554-4113.

STUDENT CONDUCT CODE

All members of the University community have a strong responsibility to protect and maintain an academic climate in which the fundamental freedom to learn can be enjoyed by all and where the rights and well-being of all members of the community are protected. To this end, certain basic regulations and policies have been developed to govern the conduct of all students as members of the University community. Copies of the Student Conduct Code and information about the policies and procedures regarding the student judicial system are available from the Office of Student Life.

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Tuition, Fees, and Financial Aid

FINANCIAL RESPONSIBILITY

Students assume responsibility for all costs incurred as a result of enrollment at Santa Clara University. It is the student's responsibility to be aware of their account balance and financial aid information, and maintain current valid address information at all times to ensure receipt of all University correspondence in a timely manner.

TUITION

The Board of Trustees, upon the recommendation of the president and the provost, sets the annual academic year tuition rate and the summer session tuition rate for the undergraduate program. The full-time quarterly tuition rate for fall, winter, and spring terms is set at one-third of the annual tuition rate. The part-time per unit tuition rate for fall, winter, and spring terms is set at one-tenth of the quarterly tuition rate.

SANTA CLARA UNIVERSITY CAMPUS PROGRAMS

Students enrolled during the academic year or summer session on the Santa Clara University campus are charged tuition based on the standard undergraduate tuition rates approved by the Board of Trustees.

Academic Year

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled during the academic year are charged tuition in accordance with the following:

- Students enrolled for 10 or more units are charged the quarterly tuition rate.
- Students enrolled for fewer than 10 units are charged the per unit tuition rate.
- Students admitted to degree status are not charged a separate course audit fee for auditing a course.

Santa Clara University Alumni

Santa Clara University alumni enrolled during the academic year are charged the applicable tuition associated with their enrollment status (i.e., enrollment for credit or auditing).

University Employees

University employees enrolled during the academic year who are admitted to degree status at the University or who are students in good standing at another accredited college or university are charged tuition at the applicable tuition rate associated with their enrollment

status (i.e., enrollment for credit or auditing). Employees are eligible for tuition remission in accordance with Policy 609 (Education Benefits) in the *Staff Policy Manual.*

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled at Santa Clara University during the academic year are charged tuition at the applicable tuition rate associated with their enrollment status (i.e., full-time or part-time status). Students from other colleges and universities are not eligible to audit courses at the University.

Young Scholars

High school students enrolled under the Young Scholars program during the academic year are charged tuition at the Young Scholars tuition rate.

Tuition Status and Adjustments

The tuition status of a student is determined as of the end of the late registration period. Students enrolled for 10 or more units at the end of the late registration period are charged the quarterly tuition rate. Students enrolled for fewer than 10 units at the end of the late registration period are charged the per unit tuition rate.

No adjustment is made to the tuition charges for changes to enrollment after the end of the late registration period unless the student withdraws from the University. If a student is enrolled for 10 or more units at the end of the late registration period and subsequently drops below 10 units, no adjustment is made in the tuition charges for that term unless the student withdraws from the University within the refund deadlines. If a student is enrolled for fewer than 10 units at the end of the late registration period and subsequently drops a course, no adjustment is made in the tuition charges for that term unless the student withdraws from the University within the refund deadlines.

Tuition Refunds

Students who withdraw from the University are eligible for a refund of tuition charges in accordance with the policies outlined below. No refunds are made for registration fees or course audit fees.

Students who wish to withdraw from the University are responsible for meeting with a University advisor in the Drahmann Center, for submitting the applicable withdrawal form with the Office of the Registrar, and for completing all other withdrawal requirements. The effective date used for the determination of any refund of tuition is the date on which notification of withdrawal is received by the Office of the Registrar, not the last date of attendance by the student. Neither dropping all courses via e-campus nor informing an individual faculty member, an academic department, or the Dean's Office constitutes an official withdrawal from the University. The official date of withdrawal from the University cannot be backdated prior to the date on which the student submits the applicable withdrawal form or notification to the Office of the Registrar.

Students who withdraw from the University during fall, winter, or spring term will receive a tuition refund in accordance with the following:

- Students who withdraw from the University by the end of the first week of classes will receive a full refund of tuition for the term, less the applicable registration cancellation fee.
- Students who withdraw from the University by the end of the second week of classes will receive a 50 percent refund of tuition for the term.

- Students who withdraw from the University by the end of the third week of classes will receive a 25 percent refund of tuition for the term.
- Students who withdraw from the University after the third week of classes will receive no tuition refund for the term.

Students who withdraw from the University due to an illness, injury, or psychological/emotional condition are eligible for a tuition refund in accordance with the schedule above. Tuition insurance may be purchased prior to the beginning of the academic quarter to cover tuition charges for medically related withdrawals that occur after the first week of the term.

Students who withdraw from the University after the third week of the term due to a qualifying financial hardship may be eligible for an allocation from the student hardship fund for 25 percent of the tuition charges for that term. Qualifying financial hardships include [1] death, disabling injury, medical emergency, or loss of job of the parent or guardian of a dependent student, [2] loss of job by an independent student, [3] medical or other emergency involving a dependent of an independent student, and [4] deployment for active military duty of a student. The vice provost for student life or designee, in consultation with the Financial Aid Office, will determine qualifying financial hardships and any allocation from the student hardship fund.

Students who are administratively withdrawn from the University by the vice provost for student life or designee may be eligible for an allocation from the student hardship fund.

No tuition refunds are made because of curtailment of services resulting from strikes, acts of God, civil insurrection, riots or threats thereof, or other causes beyond the control of the University.

Students must submit a request for reconsideration of tuition charges or for an allocation from the student hardship fund not later than 90 days from the end of that term.

Summer Session

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled during summer session are charged the summer session tuition rate.

Santa Clara University Alumni

Santa Clara University alumni enrolled during summer session are charged the applicable tuition rate associated with their enrollment status (i.e., enrollment for credit or auditing).

University Employees

University employees enrolled during summer session at Santa Clara University who are admitted to degree status at the University or who are students in good standing at another accredited college or university are charged tuition at the applicable tuition rate associated with their enrollment status (i.e., enrollment for credit or auditing). Employees are eligible for tuition remission in accordance with Policy 609 (Education Benefits) in the *Staff Policy Manual.*

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled at Santa Clara University during summer session are charged tuition at the summer session tuition rate and the summer session registration fee. Students from other colleges and universities are not eligible to audit courses at the University.

Young Scholars

High school students enrolled under the Young Scholars program during summer session are charged tuition at the Young Scholars tuition rate and are not charged the summer session registration fee.

Tuition Refunds

Students who drop a course(s) during summer session are eligible for a refund of tuition charges in accordance with the policies outlined below. No refunds are made for registration fees or course audit fees.

Students who wish to drop a course during summer session are responsible for initiating the drop through e-campus or by submitting the applicable form to the Office of the Registrar. The effective date used for the determination of any refund of tuition is the date on which the student submits the intent to drop the course to the Office of the Registrar, not the last date of attendance by the student. The official date of dropping the course cannot be backdated prior to the date on which the student submits the applicable form or notification to the Office of the Registrar.

Students who drop a course during summer session will receive a tuition refund in accordance with the following:

- Students who drop a course by the end of the second day of classes will receive a full refund of tuition for the course.
- Students who drop a course by end of the third day of classes will receive a 50 percent refund of tuition for the course.
- Students who drop a course after the end of the third day of classes will receive no tuition refund for the course.

Students who drop a course due to an illness, injury, or psychological/emotional condition are eligible for a tuition refund in accordance with the schedule above. Tuition insurance may be purchased prior to the beginning of the summer session to cover tuition charges for medically related withdrawals after the second day of classes.

Students who are administratively withdrawn from all courses during summer session by the vice provost for student life or designee may be eligible for an allocation from the student hardship fund.

No tuition refunds are made because of curtailment of services resulting from strikes, acts of God, civil insurrection, riots or threats thereof, or other causes beyond the control of the University.

Students must submit a request for reconsideration of tuition charges or for an allocation from the student hardship fund not later than 90 days from the end of that term.

STUDY ABROAD AND DOMESTIC STUDY PROGRAMS

Students enrolled in study abroad and domestic study programs during the academic year or summer session operated by or affiliated with the University are charged a tuition rate consistent with the standard undergraduate tuition rates approved by the Board of Trustees.

Academic Year

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled in study abroad and domestic study programs during the academic year are charged the applicable per term Santa Clara tuition rate.

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled in a Santa Clara-operated study abroad program are charged the applicable Santa Clara tuition rate.

Tuition Refunds

Tuition refunds for students in study abroad and domestic study programs are governed by the applicable tuition refund schedule and any agreements governing SCU-operated, affiliated, and exchange programs.

Summer Session

Santa Clara University Degree Students

Students admitted to degree status at Santa Clara University enrolled in study abroad and domestic study programs during summer session are charged tuition at the applicable summer session tuition rate.

Non-Degree Students from Other Colleges and Universities

Students from other colleges and universities enrolled in a Santa Clara-operated study abroad program during summer session are charged tuition at the applicable summer session tuition rate and the summer session registration fee.

Tuition Refunds

Tuition refunds for students in study abroad and domestic study programs are governed by the applicable tuition refund schedule and any agreements governing affiliated and exchange programs.

ROOM AND BOARD CHARGES

The Board of Trustees, upon the recommendation of the president and the vice president for administration and finance, sets room and board charges for undergraduate student housing. Rates for specific types of accommodations and meal plans are available from the Housing Office. Students sign a University Housing Contract for a full academic year or, if entering housing mid-year, for the remainder of the academic year. A student who moves from, is evicted from, or otherwise does not reside in a University residence for the full term of their contract will be assessed room and board charges consistent with the terms of the University Housing Contract.

Room and board charges for study abroad and domestic study programs are assessed at the rate established by the University for each program.

FINANCIAL AID

Santa Clara University offers a broad range of financial assistance to undergraduate students administered through the Financial Aid Office. The University realizes that the quality education offered at Santa Clara requires a serious commitment from the student and his or her family. As a partner in this endeavor, the University makes every effort to offer assistance to deserving students. The University makes initial financial aid awards to entering students based on an analysis of financial need and other relevant factors consistent with applicable federal, state, and University regulations and renews awards in subsequent years at least at the initial level, provided the student maintains good academic standing and his or her financial situation does not change. Depending on the student's eligibility, a financial aid package may include any combination of grants, scholarships, loans, and on-campus employment.

SANTA CLARA GRANTS AND SCHOLARSHIPS

SCU Need-Based Grants and Scholarships

Santa Clara University awards need-based grants and scholarships to students with demonstrated financial need determined from information supplied on the Free Application for Federal Student Aid (FAFSA) and the College Scholarship Service Financial Aid PROFILE forms. Recipients of a Santa Clara need-based grant or scholarship must have a minimum grade point average of 2.5 at the end of their freshman year and maintain a minimum grade point average of 3.0 in subsequent years. The amount of a Santa Clara need-based grant or scholarship varies up to full tuition.

SCU Academic Merit Awards

Presidential Scholars

Presidential Scholar awards provide a full-tuition scholarship to up to 10 freshman students who are admitted with distinction and who demonstrate other qualities identified and emphasized by the president as critical to the University's mission. Presidential scholars are notified of their selection at the time of their admission to the University. The scholarship is renewable for up to four years, but must be coordinated with any need-based state or federal financial aid. If other Santa Clara financial aid funds are awarded to a presidential scholar, the total amount of the Santa Clara awards cannot exceed the value of full tuition.

Provost Scholars

Provost Scholar awards provide a 50 percent tuition scholarship to up to 40 freshman students who are admitted with distinction and have assumed leadership roles in their school and community. Provost scholars are notified of their selection at the time of their admission to the University. The scholarship is renewable for up to four years, but must be coordinated with any need-based state or federal financial aid. If other Santa Clara financial aid funds are awarded to a provost scholar, the total amount of the Santa Clara awards cannot exceed the value of full tuition.

Dean's Scholarship

The Dean's Scholarship (Arts and Sciences, Business, and Engineering) is a merit-based award to freshmen. The amount of individual awards varies based on the number of recipients and available funds. The Dean's Scholarship is renewable for up to four years, but must be coordinated with any other financial aid that might be awarded at a later date, including state or federal aid. In addition, the Dean's Scholarship is a fixed amount and is not indexed to changes in tuition; therefore, the scholarship will not increase annually. Students must maintain good academic status in order to retain this award.

Honors Program Scholarships

A limited number of scholarships is available to students in the University Honors Program. Honors Scholars are notified of the selection at the time of their admission to the University. The amount of an individual award varies based on the number of recipients and the availability of funds. The scholarship is renewable for up to four years, but must be coordinated with any need-based state or federal financial aid.

Presidential Scholarship Fund

Awards from the Presidential Scholarship Fund are open to undergraduate students who have attained senior status, have attended at least six quarters at Santa Clara University, and have either excelled academically (minimum 3.5 grade point average) or made a significant contribution to the University community in a nonacademic area while maintaining a solid academic record.

Thomas J. and Arlene Bannan Merit Scholarship

The Thomas J. and Arlene Bannan Merit Scholarship is awarded to a limited number of students who have demonstrated high academic achievement and exemplify the best traditions of Santa Clara University in terms of leadership, integrity, and community service. Recipients are selected during the admissions process and there is no separate application.

Eastside Future Teachers Program Scholarship

Each year, six students from the Eastside Union High School District (EUHSD) are selected for the Eastside Future Teachers Program Scholarship (EFTP). Students receive awards for four years of undergraduate study and a fifth year teaching credential at Santa Clara University. If the student demonstrates financial need, selected student will receive an award varied in amounts. The Eastside Future Teachers Program in consultation with the Eastside Union High School District identifies potential candidates.

National Merit Scholarships

Each year Santa Clara University awards four National Merit Scholarships to incoming freshmen. Students are selected from those National Merit Finalists who listed Santa Clara as their first choice school.

SCU Talent and Performance-Based Awards

Theatre and Dance Scholarships

The Department of Theatre and Dance, in conjunction with the Financial Aid Office, awards scholarships to students who are declared majors in theatre and dance. Auditions for awards are generally held in early January.

Music Scholarships

The Department of Music offers partial tuition and private lesson scholarships to students who qualify by audition.

Debate and Forensics Scholarships

Scholarships are available to students participating in the debate and forensics program. Most scholarships are awarded in the sophomore, junior, and senior years of undergraduate study.

SCU Legacy Grants and Scholarships

Jesuit Ignatian Awards

Jesuit Ignatian Awards are awarded to academically outstanding graduates of Jesuit high schools. Award amounts range up to full tuition. The amount of an individual award varies based on the number of recipients and the availability of funds. The scholarship is renewable for up to four years, but must be coordinated with any need-based state or federal financial aid. In addition, the scholarship is a fixed amount and is not indexed to changes in tuition; therefore, the scholarship will not increase annually.

Alumni Family Scholarships

A limited number of scholarships is awarded each year to children and grandchildren of Santa Clara University alumni. Criteria for selection include financial need, academic accomplishments, extracurricular activities, and demonstrated leadership ability. Award amounts vary, depending on the number of qualified students and the availability of funds. Selection is made by the Alumni Family Committee in consultation with the Financial Aid Office.

Third-Child Family Grants

The University offers a Third-Child Grant to families with three or more dependent children simultaneously enrolled in undergraduate programs at the University. A grant equal to 50 percent of the annual tuition amount will be awarded to the student who is furthest along in his or her studies. To be considered, parents must submit a written request with a copy of their federal income tax return showing all three Santa Clara students as dependents.

Athletic Scholarships

The Department of Athletics awards a total of 97 scholarships to student-athletes competing in the 19 intercollegiate sports sponsored by the University in accordance with the regulations of the National Collegiate Athletic Association and the West Coast Conference. Depending on the sport and the student-athlete's eligibility, individual scholarships vary up to the full cost of attendance as defined by NCAA regulations. The Financial Aid Office will

coordinate athletic scholarships with other financial aid awards in accordance with applicable federal, state, and University regulations.

Community Facilitator Grants

Students who are community facilitators in the Residential Learning Communities receive a grant generally equivalent to the cost of room and board for their service in that role. The Financial Aid Office will coordinate community facilitator grants with other financial aid awards in accordance with applicable federal, state, and University regulations.

Faculty and Staff Tuition Remission

SCU Tuition Remission

Santa Clara faculty and staff and their dependents enrolled as undergraduate students are eligible to receive a tuition remission grant in accordance with Policy 609 (Education Benefits) in the Staff Policy Manual. Tuition remission grants only cover tuition costs. Students are responsible for room and board charges and other fees associated with their enrollment. SCU tuition remission is coordinated with other financial aid awards in accordance with applicable federal, state, and University regulations.

FACHEX Grants

FACHEX (Faculty and Staff Children Exchange) is a tuition remission program for children of full-time faculty and staff established by the Conference of Academic Vice Presidents of the Association of Jesuit Colleges and Universities. Under the FACHEX program, employees who have a tuition remission benefit for their children at their home institution are eligible to apply for the same benefit at participating Jesuit colleges and universities. The home institution determines specific eligibility requirements. Because each participating institution determines the number of FACHEX grants it will award to incoming students each year, there are no guarantees to the children of a given faculty or staff member that they will be able to utilize the FACHEX benefit at the institution of their choice. FACHEX grants only cover tuition costs. Students are responsible for room and board charges and other fees associated with their enrollment. Children of Santa Clara employees who utilize the FACHEX program at another institution and subsequently transfer to Santa Clara as an undergraduate student are not eligible for an SCU tuition remission.

Tuition Exchange Grants

Tuition Exchange is a tuition grant program for dependent children of faculty and staff managed under a partnership program involving almost 600 colleges and universities.

Dependent children of University employees are eligible to participate in the Tuition Exchange in accordance with Policy 609 (Education Benefits) in the Staff Policy Manual.

Tuition Exchange grants are not a guaranteed award, but are based on each institution maintaining a balance between students sent on the exchange (exports) and students received on the exchange (imports). Most tuition exchange grants cover full tuition for four years at the host institution. Students are responsible for room and board charges and other fees associated with their enrollment. Institutions with tuition costs greater than $25,000 are permitted to award less than their full tuition but not less than $25,000. The Tuition Exchange Board of Directors sets the minimum value of a Tuition Exchange grant annually. Any difference between the Tuition Exchange grant value and the actual tuition is the responsibility of the student.

FEDERAL AND CALIFORNIA GRANTS

Pell Grants

Pell Grants are need-based grants awarded to students in accordance with eligibility requirements set by the United States Department of Education. The maximum amount of a Pell Grant is set in the funding legislation adopted by Congress. Grants can be used for tuition, fees, and living expenses. Students must file the Free Application for Federal Student Aid (FAFSA) to be considered for a Pell Grant.

Academic Competitiveness Grants

The Academic Competitiveness Grant program provides grants to full-time students who are eligible for a Pell Grant and who have successfully completed a rigorous high school program as determined by the state or local education agency and recognized by the Secretary of Education. Second-year students must also have maintained a cumulative grade point average of at least 3.0. Academic Competitiveness Grants are awarded for amounts up to $750 for the first year of undergraduate study and up to $1,300 for the second year of undergraduate study.

National Science and Mathematics Access to Retain Talent Grants

The National Science and Mathematics Access to Retain Talent (SMART) Grant program provides grants to full-time students in their third and fourth years of undergraduate study who are eligible for a Pell Grant and who are majoring in physical, life, or computer science, mathematics, technology, engineering, or a foreign language determined critical to national security. The student must also have maintained a cumulative grade point average of at least 3.0 in coursework required for the major. National SMART grants are awarded for amounts up to $4,000 for each year of undergraduate study.

Federal Supplemental Educational Opportunity Grants

The Federal Supplemental Educational Opportunity Grants (FSEOG) are need-based grants available to students with the most exceptional need who have not yet received a bachelor's degree. Grants range from $100 to $4,000 a year. Priority is given to students who are eligible for Pell Grants and then to other undergraduate students with the greatest demonstrated need.

California Grants

The California Grant program provides state-funded awards to California residents based on both academic achievement and financial need. Eligibility criteria for the Cal Grant A and Cal Grant B programs are available from the California Student Aid Commission.

The Cal Grant A program assists with tuition and fees at public and independent colleges. The California Student Aid Commission sets the current maximum award for a Cal Grant A based on the funding legislation adopted by the State of California. A Cal Grant A Entitlement Award is made to every graduating high school senior who has at least a 3.0 grade point average, meets the financial and academic requirements, and submits an application by the applicable deadline. A Cal Grant A Competitive Award is made to other eligible students who have at least a 3.0 grade point average. Selection is based on a composite score that considers family income, parents' educational level, grade point average, time out of high school, and other factors, such as whether the student comes from a single-parent household or is a former foster youth.

The Cal Grant B program provides a living allowance and tuition assistance for students who demonstrate substantial financial need and come from a very low-income household. Awards for most first-year students are limited to an allowance for books and living expenses. When renewed or awarded beyond the freshman year, the award also helps pay for tuition and fees. The awards for tuition and fees are the same as those for Cal Grant A. Every graduating high school senior who has at least a 2.0 grade point average, meets the financial and academic requirements, and submits an application by the applicable deadline will receive a Cal Grant B Entitlement award. Other eligible students who have at least a 2.0 grade point average may apply for a Cal Grant B Competitive award. Selection is based on a composite score that considers family income, parents' educational level, grade point average, time out of high school, and other factors, such as whether the student comes from a single-parent household or is a former foster youth.

OTHER GRANTS AND SCHOLARSHIPS

Army ROTC Scholarships

Scholarships are awarded to undergraduate students through the Army Reserved Officers Training Program (ROTC). Two-year, three-year, and four-year scholarships are awarded under the program to eligible ROTC students. The ROTC scholarships cover full tuition from funds provided by the Army and standard on-campus room and board charges from a University grant. In addition, recipients receive a tax-free stipend ranging from $250 to $400 per month during the academic year and an allowance for books and other educational items. Students who accept Army ROTC scholarships incur a military obligation that can be fulfilled by serving part-time in the Army National Guard or Army Reserve or by serving full-time on Army active duty.

Private Scholarships

Students receiving private scholarships must notify the Financial Aid Office if they are receiving any other form of financial aid. Private scholarship checks should be sent by the awarding organization to the Financial Aid Office to ensure appropriate and timely processing. The Financial Aid Office will coordinate private scholarships with other financial aid awards in accordance with applicable federal, state, and University regulations.

STUDENT EMPLOYMENT

Campus Employment

Part-time jobs for undergraduate students are available in many offices and departments on campus. Campus job listings are maintained by the Student Employment Office.

Students earn an hourly wage at least at the current minimum wage rate for the State of California and may be paid at a higher rate depending on the type of work or skills required.

Federal Work Study Program

The Federal Work Study program is a need-based student employment program under which students can work up to 20 hours per week on campus or through an approved off-campus site. Students earn an hourly wage at least at the current minimum wage rate for the state of California and may be paid at a higher rate depending on the type of work or skills required. Students receive a paycheck each period and can use the money for educational or living expenses. Earnings under the program are taxable.

LOANS

Federal Perkins Loans

Perkins Loans are federally funded low-interest loans provided to undergraduate students based on financial need and administered by the University. Depending on funds available, a student may borrow up to $4,000 per year while enrolled as an undergraduate student. Repayment of the loan begins nine months after completion of the deferment period, upon graduation, or when the student's enrollment status drops below half-time status (i.e., less than 6 units). The current interest rate on Perkins Loans is fixed at 5 percent.

William D. Ford Federal Direct Loans

William D. Ford Federal Direct Loans are federally funded low-interest loans provided to undergraduate students and administered by the United States Department of Education. Under the Federal Direct Loan program, a student may borrow funds for educationally related expenses and defer repayment until six months after graduation or when the enrollment status drops below half-time (i.e., less than 6 units). If an undergraduate is an independent student or a dependent student whose parents are not eligible for a Federal PLUS Loan, the student can borrow more funds on the Federal Direct Loan program based on their academic grade level. To receive a subsidized Federal Direct Loan, a student must have unmet financial need. Interest is not charged on a subsidized Federal Direct Loan while the student is enrolled at least half-time or during any grace or deferment periods. Eligibility for unsubsidized Federal Direct Loans is determined after eligibility for subsidized Federal Direct Loans is decided. Interest is charged on unsubsidized Federal Direct Loans during all periods, including while the student is enrolled in school and during any grace or deferment periods.

Parent Loan for Undergraduate Students

Santa Clara University participates in the Federal Family Education Loan Program through which a parent of a dependent student may apply for a Parent Loan for Undergraduate Students (Federal PLUS) to help cover the costs of educational expenses. To be eligible for a Federal PLUS loan, a student must be a United States citizen or a permanent resident alien and must be enrolled at least half-time. A parent may borrow up to the cost of attendance minus all other financial aid for each undergraduate child. An origination fee and a federal default fee are deducted from the disbursement of the loan. The current interest rate on Federal PLUS Loans is fixed at 8.5 percent.

FINANCIAL AID ELIGIBILITY

Enrollment Status and Financial Aid Eligibility

Undergraduate students receiving financial aid must meet general University eligibility requirements and any applicable eligibility criteria associated with specific federal, state, or University aid programs from which they are receiving support. Financial aid recipients generally must be enrolled as full-time students in a minimum of 12 units each quarter in which aid is received, must be making satisfactory progress toward a degree, and must maintain a minimum cumulative grade point average of 2.0. Financial aid awards to students who drop below full-time status (i.e., less than 12 units) will be adjusted unless certification for continuing eligibility is granted by the Financial Aid Office. Eligibility for financial aid is

limited to a maximum of 12 quarters of undergraduate study. Financial aid awards will cease after the twelfth quarter of enrollment in a post-secondary institution unless certification for continuing eligibility is granted by the Financial Aid Office. Specific financial aid awards may have additional requirements for continuing eligibility.

Academic Standing and Satisfactory Progress Requirements

All financial aid recipients must maintain good academic standing and be making satisfactory progress toward a degree according to the University standards and applicable federal and state regulations. In general, students must maintain a cumulative grade point average of 2.0 or higher in courses taken at Santa Clara and must successfully complete at least 75 percent of the cumulative quarter units they attempt. The completion rate is calculated using all quarters of attendance, whether or not the student received financial aid.

Students receiving notification of unsatisfactory progress toward a degree will continue to be eligible for financial aid during the first two quarters of a probationary period. If a student has not improved their cumulative grade point average to at least a 2.0 and improved their cumulative course completion rate to at least 75 percent after two quarters, eligibility for federal and state financial aid will cease. If a student has not improved his or her cumulative grade point average to at least a 2.0 and improved his or her cumulative course completion rate to at least 75 percent after a third quarter, eligibility for University financial aid will cease. Students who lose eligibility for financial aid and later regain good standing must reapply for financial aid. Reinstatement of financial aid will be based on the availability of funds at the time of recertification of eligibility for aid. If a student's financial aid was cancelled because his or her academic progress did not meet the minimum standards, the student may appeal for reinstatement of financial aid based on serious illness, death or serious illness of an immediate family member, or other compelling circumstances.

Academic Disqualification

Students who have been academically disqualified are ineligible for financial aid. If a student is disqualified for a limited amount of time, the student will lose eligibility for financial aid for that period. The period of disqualification will be considered part of the 12-quarter limitation just as if the student had been in attendance and received aid during the period of temporary disqualification. A student who has been reinstated after disqualification by the University may not be eligible for certain federal, state, or University financial aid programs depending on the specific eligibility requirements and availability of funds.

Disciplinary Probation and Disqualification

Eligibility for financial aid is contingent on a student remaining in good judicial standing at the University. Students who are placed on disciplinary probation for the first time will continue to remain eligible for financial aid, unless otherwise prohibited by federal, state or University regulations. Students who are placed on disciplinary probation a second time within two years of the date the first probation was imposed will lose eligibility for Santa Clara financial aid effective the date the second probation is imposed. Students who are suspended from the University are not eligible to receive financial aid. If a student is placed on disciplinary probation or deferred suspension or is involved in other significant disciplinary matters, their eligibility for financial aid is subject to review by the Office of Student Life and the Financial Aid Office.

Study Abroad and Domestic Public Sector Study Programs

Santa Clara University students participating in study abroad and domestic public sector study programs operated by or affiliated with the University are eligible for SCU financial aid and tuition remission as well as federal and state aid consistent with the policies and practices applicable to students enrolled for on-campus classes. Tuition and room and board rates associated with the specific program will be factored into the determination of the financial aid award consistent with applicable policies and practices. The total amount of tuition remission for the academic year cannot exceed the annual tuition rate for that year. Students with private scholarships should contact the donor for prior approval to use funds for study abroad or domestic study programs. Students from other colleges and universities enrolled in SCU study abroad programs are not eligible for SCU financial aid.

Veterans and Veterans' Dependents Assistance

Santa Clara University has been certified by the Department of Veterans Affairs as qualified to enroll students under applicable federal legislation and regulations, including Chapter 35 (child of a deceased or 100 percent disabled veteran, widow of any person who died in the service or died of a service-connected disability, or wife of a veteran with a 100 percent service-connected disability), Chapter 31 (rehabilitation), Chapter 30/1606 (active duty Montgomery G.I. Bill), Chapter 34 (old G.I. Bill), and Chapter 32 (Post-Vietnam Era Veterans' Educational Assistance Program). Individuals interested in attending under any of the veteran's assistance programs should contact the Veterans Administration and the University Office of the Registrar.

CANCELLATION OF FINANCIAL AID AND RETURN OF FUNDS

Students who withdraw from the University and who have federal financial aid are subject to the federal regulations applicable to the return of Title IV funds. These regulations assume that a student "earns" his or her financial aid based on the period of time he or she remains enrolled during a term. A student is obligated to return all unearned federal financial aid funds governed under Title IV other than those earned under the college work-study program.

Unearned financial aid is the amount of disbursed Title IV that exceeds the amount of Title IV aid earned in accordance with the federal guidelines. During the first 60 percent of the term, a student "earns" Title IV funds in direct proportion to the length of time he or she remains enrolled. That is, the percentage of time during the term that the student remains enrolled is the percentage of disbursable aid for that period that the student has earned. A student who withdraws after the 60 percent point of the enrollment term earns all Title IV aid disbursed for the period. The amount of tuition and other charges owed by the student play no role in determining the amount of Title IV funds to which a withdrawn student is entitled.

All funds must be returned to federal programs before funds are returned to state or University financial aid programs or to the student. The return of funds allocation will be made in the following order for students who have received Federal Title IV assistance.

- Unsubsidized William D. Ford Federal Direct Loan
- Federal PLUS Loan
- Subsidized William D. Ford Federal Direct Loan

- Federal Perkins Loan
- Academic Competitiveness and National SMART Grants
- Federal Supplemental Educational Opportunity Grant
- Pell Grant
- Other federal and state financial aid, private grants and scholarships
- University grants and scholarships

STUDENT VERIFICATION OF INFORMATION

The United States Department of Education requires all institutions disbursing federal financial aid funds to verify the accuracy of the information students and their families submit as a basis for the award of aid. Santa Clara University complies with this requirement by participating in the Federal Quality Assurance Program. Each year, a percentage of students receiving federal financial aid funds are randomly selected for verification of the information on which their awards were based. Students selected for verification may be required to submit additional documents and verify information, such as household size and number of family members enrolled in college. The University reserves the right to request similar information for verification purposes for any student awarded aid and to verify the attendance of other children in college. Information collected may result in changes to a financial aid award and, in some cases, the repayment of funds already received. Failure to comply with the request for this information will result in the cancellation of financial aid funds.

BILLING AND PAYMENT PROCEDURES

STUDENT ACCOUNTS AND BILLING

Students assume responsibility for all costs incurred as a result of enrollment at Santa Clara University and agree to abide by applicable University policies and procedures.

Students may designate a third party (e.g., parent, spouse) to be an authorized payer for their student account. That individual is authorized by the student to have access to their billing statements and to make payments on the student's behalf. Once authorization is arranged, the authorized payer will be notified via the e-mail address provided by the student verifying their access to view and pay a student's bill online. Authorized payers do not have access to any other student account information via this site.

Students receive monthly bills electronically via a third-party vendor that are accessible through University e-campus. A billing notification will be sent to the student's University e-mail address and to the e-mail address of any payer authorized by the student. Students may also forward their student account statements electronically to any third party they authorize for remittance. Information on a student's account cannot be provided to any third party payer unless a completed Family Educational Rights and Privacy Act form authorizing its release by the student is on file with the University.

Students are obligated to pay the applicable tuition and fees associated with their enrollment status by the published payment deadline. Registered students who do not withdraw formally from the University are responsible for all tuition and fees assessed to their account as well as any penalty charges incurred for nonpayment. Nonattendance does not relieve the student of his or her obligation to pay tuition and fees.

PAYMENT METHODS

Santa Clara University offers a variety of payment methods to students and their parents to assist with their financial obligations.

Payment by Electronic Check

A student or authorized payer may make online payments by authorizing a fund transfer directly from their personal checking or savings account through a third-party Web site accessible via the University e-campus system. The payer is able to make electronic check payments online without incurring a service fee.

Payment by Credit Card

The University does not accept direct payment by credit card on student accounts. However, the University has arranged for a third-party vendor to accept MasterCard, Discover, and American Express credit card payments via the Web for those wishing to make payments in this manner. Payers are assessed a service fee on payments made using credit cards.

Payment by Mail

Payments for student account charges are accepted by mail utilizing the University's cash management service lockbox. The payer should download a copy of the student's billing statement, enclose it with a personal or cashier's check payable to Santa Clara University, and mail both to Santa Clara University Bursar's Office, P.O. Box 60000, File 72662, San Francisco, CA 94160-2662.

Payment in Person

Payments for student account charges may be made in person by cash or check at the Bursar's Office in Walsh Administration Building. The Bursar's Office is not able to accept any electronic form of payment, including debit or credit cards. However, there are computer kiosks located in Walsh Administration Building for the convenience of students and their payers who wish to make electronic payments.

EXTENDED PAYMENT OPTIONS

For students and their families wishing to spread payments over a period of time, the University offers various extended payment plans through a third-party vendor. There is a modest fixed fee to enroll in these plans, but no interest is charged during the payment term. Information about these plans is available on the Bursar's Office Web page.

DELINQUENT PAYMENTS

If all charges on a student's account have not been cleared by payment, financial aid, or loan disbursement, a late payment fee will be assessed to the student's account and a hold will be placed on the student's record. A hold on a student's record prevents the release of transcripts or diplomas, prevents access to any registration services, and may limit access to other University services. Students who have unpaid accounts at the University or who defer payment without approval are subject to dismissal from the University. All unpaid balances will accrue 10 percent interest per annum on the balance remaining from the date of default in accordance with California state law.

Delinquent student accounts may be reported to one or more of the major credit bureaus and may be forwarded to an outside collection agency or an attorney for assistance in recovering the debt owed to the University. The student is responsible for all costs incurred to collect outstanding debt, including but not limited to accrued interest, late fees, court costs, collection fees, and attorney fees. All outstanding bills and costs of collection incurred by the University must be paid in full prior to a student re-enrolling at the University.

BILLING DISPUTES

If a student believes there is an error on his or her billing statement, a written explanation should be forwarded to: Santa Clara University, Bursar's Office, 500 El Camino Real, Santa Clara, CA 95053-0615. The Bursar's Office must receive written correspondence within 60 days from the billing statement date on which the error appeared. Communication can be made by telephone, but doing so will not preserve the student's rights.

Communication should include the student's name, SCU identification number, the amount in question, and a brief explanation. Payment for the amount in question is not required while the investigation is in progress. An adjustment will be made on the student's account for any incorrect charges. If the amount in question is found to be valid, payment must be submitted to the Bursar's Office immediately upon notification.

REFUND PAYMENTS

Refunds will be granted only for student accounts reflecting a credit balance. A refund will not be granted based on anticipated aid. All financial aid must be disbursed into a student's account before a refund is processed. It is the student's responsibility to make sure that all necessary documentation is completed and submitted to the Financial Aid Office so that aid can be disbursed properly and in a timely fashion. Payment received by personal check will have a 21-day hold before a refund can be issued.

TUITION INSURANCE PROTECTION

Students and their families may protect themselves against financial loss due to an unexpected withdrawal from the University for medical reasons by purchasing tuition insurance coverage. The University has identified an insurance company, Dewar, Inc., to provide an optional tuition insurance protection plan. This plan is designed to protect from loss of funds paid for tuition should it be necessary to withdraw completely from the University during the term for medical reasons. Information on the tuition insurance plan is available from the Bursar's Office and on its Web site.

EDUCATIONAL TAX CREDITS

Students may be eligible for a higher education tax credit designed to help students and their parents finance the cost of education. Tax credits are based on the amount of qualified tuition and fees, less grants and other tax-free educational assistance, and the taxpayer's adjusted gross income. Students enrolled in an eligible degree program may qualify for a Hope Scholarship Credit or Lifetime Learning Tax Credit. Specific information is available from the Internal Revenue Service.

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University Honor Societies and Awards

HONOR SOCIETIES

Santa Clara University is proud to host 25 prestigious national honor societies in the liberal arts, sciences, business administration, and engineering. These societies reflect a long tradition of academic excellence, tracing their origins back at least 50 years. Some date from the 19th century and one dates from the 18th century.

Alpha Delta Gamma

Alpha Delta Gamma, the national Medieval and Renaissance studies honorary society, was founded in 1993 by the Program in Medieval and Renaissance Studies of the College of William and Mary in order to recognize faculty and students who share a love for the European Middle Ages and Renaissance. The Alpha chapter at Santa Clara was founded in 2000. Alpha Delta Gamma strives to encourage the highest ideals of scholarship and intellectual attainment. To be eligible, a student must be a declared candidate for a minor in Medieval and Renaissance studies, have completed at least three courses in the program, and have earned a grade point average of 3.0 overall and 3.1 for the courses in the program.

Alpha Kappa Delta

Alpha Kappa Delta, the national sociology honor society, was founded at the University of Southern California in 1920. The Santa Clara University chapter, Alpha Mu, was founded in 2000. The society's primary goal is to encourage social research for the purpose of service. To be invited to join, a student must be a sociology major of junior or senior standing; have an overall grade point average of 3.3 or higher; have completed at least four sociology courses at Santa Clara; and must have successfully completed at least Sociology 119 and 120 in the research sequence.

Alpha Psi Omega

Alpha Psi Omega is the national theatre arts honor society founded in 1925 at Fairmont College. Chapters are called "casts," and the Alpha Gamma Psi cast at Santa Clara University was started in 2000. Alpha Psi Omega has sponsored the formation of theatre honors societies with the aim of encouraging dramatic production at every step in a person's academic career. The Alpha Gamma Psi cast provides an opportunity for student leadership and a regard for academic excellence and active participation in the Department of Theatre and Dance.

Alpha Sigma Nu

Alpha Sigma Nu, the national Jesuit honor society, was founded at Marquette University in 1915. The Santa Clara University chapter was installed in 1942. Alpha Sigma Nu upholds the Jesuit values of academic excellence and service to the University and the community. Juniors and seniors who are in the top 15 percent of their class and have a demonstrated record of service and loyalty to the Jesuit ideals of education are eligible for membership.

Beta Beta Beta

Beta Beta Beta, the national honor and professional society for students of the biological sciences, was founded in 1922, and the Santa Clara University chapter was established in 1994. As a national organization, this society emphasizes a threefold program for the local chapter members: to stimulate scholarship, disseminate scientific knowledge, and promote biological research. Membership is reserved for those who achieve a superior academic record and demonstrate a special aptitude for the life sciences. Associate membership is for students with exceptional potential who are just beginning formal study and research in biology.

Beta Gamma Sigma

Beta Gamma Sigma, the national business honor society, was founded in 1913. The Santa Clara chapter was founded in 1955. The mission of Beta Gamma Sigma is to encourage and honor academic achievement in the study of business and personal and professional excellence. Membership is offered to students who show promise of success in the field of business and rank in the top 10 percent of their junior class or in the top 10 percent of their senior class.

Delta Omicron

Delta Omicron, the international music fraternity, is a professional honor society in the field of music. The society was founded in 1909 at the Cincinnati Conservatory of Music. The Gamma Omega chapter at Santa Clara University was established in 1999. Delta Omicron was created to foster fellowship through music, to encourage high scholastic achievement, to recognize excellence in musical performance, and to prepare students entering the professional world. Membership is on the basis of talent, scholarship, and character, and is open to declared music majors and minors.

Eta Sigma Phi

Eta Sigma Phi, the national classics honorary society, was founded at the University of Chicago in 1914 and became a national organization in 1924. The Epsilon Psi chapter of Eta Sigma Phi was founded at Santa Clara University in 1987. Its primary purposes are to further the spirit of cooperation and good will among members of the classics profession, to stimulate interest in the study of the classics, and to increase knowledge of the art, literature, history and culture of ancient Greece and Rome. To be eligible for nomination to membership, a student must have completed five quarters of college work, including at least three courses in classics (language, literature, history, or some aspect of culture) and have achieved a minimum grade point average of 3.0 in both the classics courses and overall.

Kappa Delta Pi

Kappa Delta Pi, an international education honor society, was founded in 1911 at the University of Illinois. The Santa Clara chapter was established in 1996. Organized to recognize excellence in education, Kappa Delta Pi elects to membership those who exhibit the ideals of scholarship, high personal standards, and promise in teaching and allied professions. To be eligible for membership, students must have completed five quarters of college work, have at least 18 quarter hours of professional education courses programmed, rank in the upper 20 percent of their class, and have a cumulative grade point average of 3.25 or better.

Lambda Alpha

Lambda Alpha, the national anthropology honors society, was founded in 1968 at Wichita State University. The Santa Clara chapter was established in 1999. The society seeks to encourage and stimulate scholarship and research in anthropology by recognizing and honoring superior achievement in the discipline and among students. To be eligible for membership, students must have achieved junior status, completed five courses in anthropology, have a cumulative grade point average of 3.3, and have a minimum grade point average of 3.5 in anthropology.

Lambda Pi Eta

Lambda Pi Eta, the official communication studies honorary society of the National Communication Association, was founded at the University of Arkansas in 1985. Theta Rho, the Santa Clara University chapter, was established in 1999. The goals of Lambda Pi Eta are to recognize, foster, and reward outstanding scholastic achievement; stimulate interest in the field of communication; provide an opportunity to discuss and exchange ideas about the field; establish and maintain close relationships and understanding between faculty and students; and explore options for further graduate studies. Members must be a communication major or minor; have junior standing; be in good standing at the University; have completed 20 quarter units in communication; have a grade point average of 3.0 overall and of 3.5 in communication courses; and must rank in the top 35 percent of their class. Students are also required to complete a service requirement each quarter.

Phi Alpha Theta

Phi Alpha Theta, the international history honor society, was founded in 1921 at the University of Arkansas. The Lambda Upsilon chapter was established at Santa Clara University in 1966. The chapter has been active in encouraging student research in history by sponsoring an annual undergraduate research journal, workshop, and conference. Members are elected to membership on the basis of excellence in the study and writing of history.

Phi Beta Kappa

Phi Beta Kappa, the oldest national honor society, was founded in 1776 in Williamsburg, Virginia, by students at the College of William and Mary. The Pi chapter at Santa Clara University was installed in 1977. Its purpose is to celebrate excellence in all scholarly endeavors and to encourage educational breadth, including languages, mathematics, the sciences, and the humanities. Election to membership in Phi Beta Kappa signifies that a student has achieved an outstanding academic record as indicated by grades and intensive study in both a second language and college mathematics, as well as a general breadth in coursework.

Phi Lambda Upsilon

Phi Lambda Upsilon, the national chemistry honor society, was founded in 1899 at the University of Illinois "for the promotion of high scholarship and original investigation in all branches of pure and applied chemistry." It was the first honor society dedicated to a single scientific discipline. Santa Clara University participates in the membership-at-large program, which extends recognition to outstanding chemistry students who are not enrolled at an institution where an active chapter of the society is located. Members must have senior standing, be in the top 20 percent of their chemistry class, and have a minimum grade point average of at least 3.5.

Phi Sigma Iota

Phi Sigma Iota, the international foreign language honor society, was founded in 1922 at Allegheny College. The Beta Delta chapter was installed at Santa Clara University in 1982. The society recognizes outstanding ability and achievement in languages, literatures, and linguistics. It stimulates advanced work in these fields, fosters intercultural understanding, and promotes a spirit of amity between our own people and other peoples of the world. Juniors and seniors with at least four advanced-content courses completed in a qualifying language, a grade point average of 3.25 in that language, and a cumulative grade point average of 3.0 may be eligible for membership.

Phi Sigma Tau

Phi Sigma Tau, the national honor society in philosophy, was founded at Muhlenberg College in 1930 as Alpha Kappa Alpha. In 1955, it was incorporated as Phi Sigma Tau. The Santa Clara University chapter received its charter in 1986. Its essential purpose is to promote ties between philosophy departments in accredited institutions and students in philosophy nationally. To be eligible for membership, students must have completed five quarters of college work, rank in the upper 35 percent of their class, and have completed at least three courses in philosophy with a grade point average of 3.4 or higher.

Pi Mu Epsilon

Pi Mu Epsilon, the national mathematics honor society, was incorporated in 1914 at Syracuse University. The California Eta chapter was founded in 1967 at Santa Clara University. The stated purpose of the society is to engage in activities designed to promote the mathematical and scholarly development of its members. Students may be elected to membership if they have completed at least two courses in mathematics in addition to a year of calculus and have completed their mathematical and general college courses with distinction.

Pi Sigma Alpha

Pi Sigma Alpha, the national political science honor society, was founded at the University of Texas in 1920. Santa Clara University's chapter, Rho Epsilon, was founded in 1988. The purpose of the society is to honor students and practitioners in political science and related subfields. Membership is granted to senior political science majors with a grade point average of 3.5 in political science and of 3.25 overall. Juniors with a grade point average of at least 3.7 in political science are also eligible for membership.

Pi Tau Sigma

Pi Tau Sigma, the national mechanical engineering honorary society, was founded in 1915 at the University of Illinois. The Santa Clara University Alpha Epsilon chapter was granted its charter in 1991. The objectives are to foster high ideals in the engineering profession, stimulate and support departmental activities, promote professional welfare, and develop leadership and citizenship. Members are selected from the top 25 percent of the junior class and top 33 percent of the senior class in the Department of Mechanical Engineering.

Psi Chi

Psi Chi, the national psychology honor society, was founded in 1929. The Santa Clara University chapter was established in 1991. The purpose of the society is to encourage, stimulate, and maintain scholarship of the individual members in all fields, particularly in psychology, and to advance the science of psychology. To be eligible for membership, students must have completed 12 or more units in psychology with a grade point average of 3.3, declared a psychology major or minor, and rank in the upper 33 percent of their class.

Sigma Pi Sigma

Sigma Pi Sigma, the national physics honor society, was founded in 1921 at Davidson College in North Carolina. The Santa Clara University chapter was founded in 1969. Sigma Pi Sigma endeavors to help students attain a clearer understanding of the powers of science, to promote further interest in the advanced study of physics, to foster the spirit of scientific research, and to encourage a professional spirit and collegiality among students of physics. Members are selected from the upper 25 percent of their class and must also have a grade point average of 3.25 in physics and mathematics.

Sigma Tau Delta

Sigma Tau Delta, the national English honor society, was founded in 1924 at Dakota Wesleyan University. The Santa Clara University chapter, Phi Phi, was established in 1987. Sigma Tau Delta recognizes scholarly achievement in the English language and in literature in all its aspects, including creative and critical writing. Members must be in the upper 33 percent of their class and must also have a grade point average of 3.5 in English.

Sigma Xi

Sigma Xi, the national scientific research society, was founded at Cornell University in 1886. The Santa Clara chapter was established in 1967. The purpose of the society is to encourage original investigation in pure and applied science. The requirements for full membership include noteworthy achievements in research as demonstrated by publications, patents, written reports, or a dissertation. Students who have demonstrated an aptitude for original scientific research are eligible for associate membership.

Tau Beta Pi

Tau Beta Pi, a national engineering honor society, was founded at Lehigh University in 1885. The Santa Clara chapter was established in 1956. The purpose of the society is to offer appropriate recognition of superior scholarship and exemplary character in engineering students. Engineering seniors in the upper 20 percent of their class are eligible. These students must demonstrate exemplary character, personal integrity, breadth of interest, adaptability, and unselfish activity.

Theta Alpha Kappa

Theta Alpha Kappa, the national theology and religious studies honor society, was founded in 1976 at Manhattan College. The Santa Clara chapter, Alpha Phi, was granted a charter in 1981. Theta Alpha Kappa seeks to encourage research, good teaching, and publication; to encourage an exchange of learning and thought among scholars; and to bring together students and teachers in intellectual and social fellowship. Religious studies majors and minors with a grade point average of 3.5 and a cumulative average of 3.0 who have completed 18 religious studies course units and are in the top 35 percent of their class are eligible for admission to the society.

Upsilon Pi Epsilon

Upsilon Pi Epsilon, the computing sciences honor society, was founded at Texas A&M University in 1967. The Santa Clara Lambda chapter was established in 1990. Its purpose is to promote high scholarship and original investigation in the computing sciences. Students must be majors in a computing discipline. Undergraduates must possess a 3.25 GPA overall and in the major and must have completed at least 64 units of credit and rank in the upper third of their class.

UNIVERSITY AWARDS

Peter-Hans Kolvenbach, S.J. Award

Established in 2001 on the occasion of the sesquicentennial of Santa Clara University, in honor of The Very Reverend Peter-Hans Kolvenbach, superior general of the Society of Jesus, this award is given by the president to a graduating senior who exemplifies the ideals of Jesuit education, especially being a "whole person of solidarity in the real world" and having the courage and faith to build a more just and humane world.

Nobili Medal

Established in 1876 by Joseph A. Donohoe in honor of John Nobili, S.J., founder of the University, this award is given to the male graduate judged outstanding in academic performance, personal character, school activities, and constructive contribution to the University by the faculty and the provost.

Saint Clare Medal

Established by the University in 1968 in honor of Saint Clare of Assisi, this award is given to the female graduate judged outstanding in academic performance, personal character, school activities, and constructive contribution to the University by the faculty and the provost.

Valedictorian

Established by the University in 1980, this honor is conferred annually on a graduating senior selected for outstanding academic achievement and University service as determined by the president in consultation with the faculty of the University and the provost.

Markkula Prize

Established in 1997 by the Advisory Board of the Markkula Center for Applied Ethics in honor of A. C. "Mike" Markkula Jr.'s leadership as chairman of the board. This award is given annually to a student in recognition of outstanding work in applied ethics.

Richard J. Riordan Awards

Established in 1984 by Richard J. Riordan, these awards are given annually to four students judged outstanding in community service.

Student Life Award

This award, established in 1984, is presented to the senior who has contributed to the overall quality of life in the University community.

COLLEGE OF ARTS AND SCIENCES AWARDS

Gerald and Sally DeNardo Senior Prize in Science Research

Established in 2007 to complement the Gerald and Sally DeNardo Lectureship, this prize is given by the dean to recognize outstanding science research accomplishment by a graduating senior who reflects the distinctive characteristics of a Jesuit education and is pursuing a career in the health sciences.

Orella Prize

Established in 1915 by Dr. and Mrs. Fermín R. Orella (B.S. 1889), this prize is awarded to the senior science student who attains the highest average in scientific subjects.

ANTHROPOLOGY

Anthropology Program Award

This prize is given to a senior anthropology major who has done outstanding work in anthropological research.

ART AND ART HISTORY

Art History Research Paper Prize

This award is given for the best research paper produced on art history as judged by the faculty of the art and art history department.

CHEMISTRY

American Chemical Society Award in Analytical Chemistry

Sponsored by the American Chemical Society Division of Analytical Chemistry to honor a junior student for excellence in both lower- and upper-division analytical chemistry courses.

American Chemical Society Polyed Award

Sponsored by the Polymer Education Committee of the American Chemical Society to honor outstanding achievement in the Organic Chemistry I, II, and III course sequence.

American Institute of Chemists Foundation Award

Awarded to an outstanding senior chemistry major in recognition of a record of leadership, ability, character, and scholastic achievement.

CRC Freshman Chemistry Achievement Award

Sponsored by the Chemical Rubber Company to honor a freshman student for outstanding performance in the General Chemistry I and II course sequence.

Professor Joseph F. Deck Award

Established in 1973, this award is given by the faculty of the Department of Chemistry to the outstanding student majoring in chemistry who has excelled in studies and undergraduate research, extracurricular activities, leadership, and generous tutoring of fellow students, while maintaining a B average.

CLASSICS

Arete Prize

Established in 1997, this prize is given to the classics major or minor who writes the best single essay or research paper on a classical topic, as determined by the faculty of the Department of Classics.

Walter J. Kropp Prize

Established in 1997 in memory of Walter J. Kropp, S.J., by the faculty of the Department of Classics, this award is given to the senior classics major who has attained the highest average in classics courses.

COMBINED SCIENCES

John B. Drahmann Prize

Established in 2001, this prize is awarded to the graduating senior combined sciences major who best exemplifies the hard-working and earnest values of John B. Drahmann, longtime dean of sciences and professor of physics.

COMMUNICATION

Communication Department Prize

Established in 1985 by alumni and friends, this award is given by the faculty of the Department of Communication to the graduating senior who best meets the goals of the department—education of the mind, heart, and voice.

Handlery Prize

Established in 1947 by Mrs. Rose Handlery in memory of her son Raymond of the class of 1934, this prize is awarded each year to the graduating senior who has contributed most to the success of student publications at the University.

Edward Shipsey, S.J., Journalism Prize

Established in 1984 by Alfred Orr Kelly in honor of Edward J. Shipsey, S.J., this prize is awarded to the outstanding junior student who has made a commitment to a career in journalism.

Justin T. McCarthy Award

Established in 1976 in memory of Justin T. McCarthy, this award is given to the senior student who has excelled in oratory or other forms of public expression.

Ryland Prize

Established in 1897 by the Hon. Caius T. Ryland, this award is given to the winners of the annual Ryland debate. Focusing on current social and political issues, this public debate is held each spring and is judged by a faculty committee.

ENGLISH

Academy of American Poets Prize

Founded in 1994 by Victoria Verga Logan and Frank Verga Jr. in memory of Tamara Verga, this prize is given to the undergraduate who writes the best group of poems (determined by an annual competition).

First-Year Composition and Rhetoric Prize

Established by the Department of English in 1983, this prize honors the student who has written the best essay for a Composition and Rhetoric I class, as determined by a faculty panel.

Christiaan Theodoor Lievestro Prize

Founded in 2000 by Christiaan T. Lievestro, this prize is awarded to the senior English major whose portfolio of essays best demonstrates a sustained, improved, and/or versatile ability to think and write about complex literary, critical, cultural, rhetorical, or theoretical issues, as determined by a faculty panel.

McCann Short Story Prize

Established in 1894 in honor of Daniel M. McCann (B.S. 1884), this award is given by the Department of English to the author of the best short story, as determined by an annual competition.

Shipsey Poetry Prize

Established in 1954 by Richard W. Schmidt in honor of the late Edward Shipsey, S.J., this prize recognizes the outstanding contribution in the art of poetry, as determined by an annual competition.

Katherine Woodall Prize in Literary Criticism

Established in 1995 by the Department of English in honor of alumna and friend Katherine Woodall '78, this prize is awarded to the senior English major whose essay best exemplifies analysis of literary texts and/or issues in literary theory, as determined by a faculty panel.

ENVIRONMENTAL STUDIES

Lucky Hinkle Sustainability Award

This award was established to honor the memory of Lucky Hinkle, longtime University staff member who worked diligently to promote recycling on campus, and is given to the Santa Clara student entering his or her senior year who, in the judgment of the faculty of the Environmental Studies Institute, has made the most significant contribution to promoting a culture of sustainability at Santa Clara University and beyond.

ETHNIC STUDIES

Matt Meier Prize

Established in 1994 in honor of Professor Matt Meier, a major contributor to the field of ethnic studies, this prize is given by the Ethnic Studies Program to the ethnic studies minor or liberal studies minor with an ethnic studies concentration who writes the best essay on an ethnic studies topic.

HISTORY

McPhee Prize

An annual award established in 2007 through the generosity of Lulu and John McPhee for the best presentation of original historical research at the History Workshop as determined by the faculty of the Department of History.

Frederick J. Mehl Prize

An annual prize established in 1993 by the department in memory of friend and benefactor Frederick J. Mehl, B.A. '74, M.A. '75, this award is given to the student who writes the best senior thesis as determined by the faculty of the Department of History

The Redwood Prize

An annual prize established in 1908 by the executive committee of *The Redwood,* this award is given to the student who writes the best essay on a historical subject as determined by the faculty of the Department of History.

LIBERAL STUDIES

Liberal Studies Academic Achievement Award

Established in 1995, this award is given to the senior liberal studies major with the highest overall grade point average at Santa Clara.

Pre-Teaching Awards

Established in 1995, these awards are given to the senior liberal studies students judged most outstanding in scholarship and professional service who plan to go on to careers in teaching.

MATHEMATICS

Robert P. Balles SCU Mathematics Scholars Award

This award is given to the mathematics major entering his or her senior year with the highest cumulative grade point average in mathematics courses completed in the student's first three years at Santa Clara University.

George W. Evans Memorial Prizes

Established in 1972 by the family and friends of the late George W. Evans II, professor of mathematics at Santa Clara University, these awards are given to the students placing highest in the William Lowell Putnam Mathematical Competition. A third award is given to the student judged most outstanding in mathematical writing and research by a panel of mathematics consultants.

Freshman Mathematics Prize

Established in 1958, this annual award is given by the faculty of the Department of Mathematics and Computer Science to the freshman student who demonstrates excellence in mathematical study and achievement, determined by a competitive examination each spring.

Paul R. Halmos Prize

This prize is awarded to the senior student or students with an outstanding academic record judged to have distinguished themselves in mathematics or computer science beyond the standard coursework.

MILITARY SCIENCE

Armed Forces Communications and Electronics Award

Established by the Department of the Army at Santa Clara in 1973, this annual award is given by the faculty of the Department of Military Science to the cadet in a communications or electronics field who excels in academic achievement, demonstrated leadership potential, and meritorious contribution to the ROTC program.

Association of the U.S. Army ROTC Medal

Established by the Department of the Army at Santa Clara in 1956, this award is given by the faculty of the Department of Military Science to the junior cadet judged most outstanding in meritorious academic attainment, exemplary conduct, efficiency, and fidelity.

George C. Marshall ROTC Award

Established by the Department of the Army at Santa Clara in 1977, this award is given by the faculty of the Department of Military Science to the cadet judged most outstanding in military studies and leadership.

Superior Cadet Award

Established by the Department of the Army at Santa Clara in 1958, these ribbons are given by the faculty of the Department of Military Science to the cadet in each of the four years of training who consistently demonstrates potential qualities of an officer, outstanding performance of duty, and overall proficiency.

MODERN LANGUAGES AND LITERATURES

Geoff and Josie Fox German Studies Award

This award is given to cultivate and encourage students to learn the German language and to familiarize themselves with the German culture. Preference is given to students who have shown a consistent interest in German culture, who have an understanding of the experience, values, and traditions of Germanic speaking countries, and who have declared a major in German.

Celeste Fritchle Award

Established in 2003 by the friends and family of the late Celeste Fritchle, a longtime University staff member, this award is given by the Department of Modern Languages and Literatures to a junior or senior student with a declared major in modern languages and literatures who has excelled in the study of more than one foreign language.

Pancrazio Infantino Italian Award

This award is given to cultivate and encourage the pursuit of the Italian language and culture at Santa Clara University. It is given to students who have an understanding of the experiences, values, and traditions of Italian culture, primarily demonstrated by a declared major in Italian.

Richard F. Rebello Phi Sigma Iota Awards

Established in 1986 by the family of the late Richard Rebello, longtime University staff member, these awards are given by the Modern Languages Department to junior or senior language majors for outstanding accomplishments in the study of foreign language and culture.

Andrew I. Rematore Award

This award is given to graduating seniors with a declared major in Spanish Studies who have excelled in the major and plan to enter the teaching profession at the elementary or secondary level.

MUSIC

American Choral Directors Association National Choral Student Award

This award is given to a student who has been involved in continued participation in choral ensembles, has provided service to the ensemble and conductor, has demonstrated a high degree of choral proficiency and music literacy, and has contributed to the advancement of choral singing at the University.

Department of Music Certificate for Distinguished Musical Performance

Established in 1980 by the faculty of the Department of Music, the Performer's Certificate is awarded to a student demonstrating exceptional accomplishment in music and excellence in musicality and technical proficiency.

Arrigo and Caterina Descalzi Prize

Established in 1990 in honor of Arrigo and Caterina Descalzi, this award is presented to the senior music student who, in the judgment of the faculty of the Department of Music, best demonstrates technical and artistic growth and dedication to the art of music.

PERFORMING ARTS

Charles Lampkin Award

This annual award, established in 1989 in honor of Charles Lampkin, the late actor and University artist-in-residence, is given to the junior or senior African-American student who has demonstrated excellence and commitment to performance in theatre, music, dance, or television.

PHILOSOPHY

Fallon Prize

Established in 1995 in memory of Timothy Fallon, S.J., by the faculty of the Department of Philosophy, this award is given to the junior student demonstrating outstanding achievement in the study of philosophy.

Sourisseau Prize

Established in 1956 by Eva Sourisseau in honor of her parents and family, this award is given by the faculty of the Department of Philosophy to the senior student demonstrating outstanding achievement in the study of philosophy.

PHYSICS

David Blockus Award

Established in 2007 in memory of David L. Blockus, Ph.D., this prize is presented each year to the outstanding senior physics major, as determined by the faculty of the Department of Physics.

Carl H. Hayn Physics Prize

Established in 1997 by William and Katherine Duffy in honor of Carl H. Hayn, S.J., longtime physics professor at Santa Clara University. The prize is awarded annually to the most outstanding student in the sequence Physics for Scientists and Engineers I, II, and III as selected by the faculty who teach the sequence.

POLITICAL SCIENCE

Michael Shallo Prize

Established by the University in 1955 in honor of Michael Shallo, S.J., the award is given by the faculty of the Department of Political Science to the student judged most proficient in political science.

PSYCHOLOGY

Wilhelm Wundt Award

Established in 1988, this award is given annually by the faculty of the Department of Psychology to the senior student who has excelled in scholarship, research, and service to the department.

RELIGIOUS STUDIES

Religious Studies Major Prize

Established in 1950 by the president of the University, this prize is given each year by the faculty of the Department of Religious Studies to the department major most proficient in all aspects of religious studies.

Religious Studies Minor Prize

Established in 2003, this prize is given each year by the faculty of the Department of Religious Studies to the department minor most proficient in the religious studies program.

Theodore Mackin Senior Thesis Award

Established in 2006 in memory of Theodore Mackin, this prize is given each year by the faculty of the Department of Religious Studies to the religious studies major with the best senior research paper.

SOCIOLOGY

Witold Krassowski Sociology Award

Established by the department, alumni, and friends in honor of Professor Witold Krassowski, the first sociologist at Santa Clara University and the first chair of the department. The award is given to a senior sociology major who has written a sociological research paper in a sociology course that is considered of exemplary quality.

THEATRE AND DANCE

Anna Halprin Dance Award

This award honors the extended creative and socially active career of Anna Halprin, a pioneer in the art of dance. This award is given to senior dancers who best exemplify excellence in dance and an awareness of community values while at Santa Clara University.

William H. Leahy Prize

Established in 1925 in honor of William H. Leahy by his wife and his brother James, this prize is awarded to the graduating senior who has made the greatest contribution to dramatic art at Santa Clara as determined by the members of the Department of Theatre and Dance.

WOMEN'S AND GENDER STUDIES

Mary Gordon Prize

Established in 1992 in honor of Professor Mary Gordon, founder of the Women's Studies Program and its first director, this prize is awarded to the women's studies student who writes the best essay on a women's studies topic.

Nina Liebman Essay Competition

Recognizes the student addressing the general topic of women and creative expression. The essay is judged by the faculty of the Women's and Gender Studies Department.

LEAVEY SCHOOL OF BUSINESS AWARDS

Charles J. Dirksen Prize

Established in 1965 by Eliot Jones, Ph.D., in honor of Charles J. Dirksen, late dean and professor of marketing emeritus, this prize is awarded to the junior in the Leavey School of Business judged outstanding in scholarship by the faculty.

Leavey School of Business Leadership Award

Awarded to the graduating business student who best demonstrates leadership in both curricular and co-curricular endeavors as evidenced by his or her commitment and dedication to the School of Business and Santa Clara University. This student continuously motivates and inspires his or her peers to make long-lasting contributions to the community and in support of the University mission.

Leavey School of Business Service Award

Awarded to the graduating business student who exemplifies the mission of the University by significantly impacting student life through civic engagement and contributions to the community as a whole.

Isabel Jones Academic Achievement Prize

Established by Eliot Jones, Ph.D., in 1956 in memory of his wife, Isabel. This award is given to the graduating senior in the Leavey School of Business who has earned the highest cumulative grade point average.

ACCOUNTING

Professor O. Robert Anderson Outstanding Student in Accounting Award

Established in 1973, this award is given in memory of Professor O. Robert Anderson, who taught accounting at the University. Awarded annually to the graduating senior accounting major judged outstanding in scholarship, leadership, and service by the faculty of the department.

Outstanding Student in Accounting and Information Systems Award

Awarded to the graduating senior accounting and information systems major recognized by the faculty of the department as having achieved high academic performance, possessing strong leadership skills, exhibiting a commitment to service, and demonstrating career potential for professional success in accounting and information systems.

ECONOMICS

Charles and Barbara Hazel Outstanding Student in Economics Award

In recognition of the contributions made by Charles and Barbara Hazel in the economics department, this award is given annually to the graduating senior economics major judged outstanding in scholarship, leadership, and service by the faculty of the department.

FINANCE

Outstanding Student in Finance Award

Awarded to the graduating senior finance major recognized by the faculty of the department as having achieved high academic performance, possessing strong leadership skills, exhibiting a commitment to service, and demonstrating career potential for professional success in finance.

MANAGEMENT

Outstanding Student in Management Award

Granted to the senior management major who, through high overall grade point average, has demonstrated noteworthy scholarship, strong leadership, and managerial aptitude in co-curricular activities.

MARKETING

Albert F. Bruno Outstanding Student in Marketing Award

Established in 1982 in memory of Albert F. Bruno by Albert V. Bruno and family. This award is conferred annually to the outstanding graduating senior marketing major on demonstration of scholarship, leadership, service, and career potential.

OPERATIONS AND MANAGEMENT INFORMATION SYSTEMS

Outstanding Student in Operations and Management Information Systems Award

Awarded to the graduating senior operations and management information systems major recognized by the faculty of the department as having achieved high academic performance, possessing strong leadership skills, exhibiting a commitment to service, and demonstrating career potential for professional success in operations and management information systems.

SCHOOL OF ENGINEERING AWARDS

Award for Research Excellence

Awarded to a senior undergraduate engineering student who has demonstrated excellence in research while an undergraduate.

Raymond M. Galantine Award

Established in 1996 to honor the memory of Raymond M. Galantine, class of 1953, this award recognizes an outstanding engineering student who has demonstrated a commitment to putting into practice the Catholic and Jesuit ideal of people in the service of others.

School of Engineering Humanities Award

Conferred each year on an engineering student who has been nominated by members of the humanities faculty and selected by the School of Engineering for outstanding work in the humanities while maintaining a strong record in engineering.

Senior Design Presentation Awards

Awarded to senior design groups in the School of Engineering who produce the best presentation in each of the following: civil engineering, computer engineering, electrical engineering, mechanical engineering, and interdisciplinary engineering. The award recipients are selected by a panel of external judges.

Senior Engineering Project Ethics Prize

This prize is awarded to the individual or team whose ethical analysis of their senior project is judged the best in the School of Engineering.

CIVIL ENGINEERING

Edmund C. Flynn Memorial Awards

Established in 1981 by Mrs. Edmund C. Flynn in memory of her husband, these awards are given to the graduating civil engineering student presenting the best thesis and to the two junior civil engineering students with the highest scholastic averages.

Outstanding Civil Engineering Senior Award

Awarded to a senior by the faculty of the Civil Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

Regan Memorial Award

Established in 1977 in memory of Patrick W. Regan of the class of 1947, this award is given to the outstanding juniors in civil engineering as determined by the faculty of the department.

Harold M. Tapay Award

Established in 1989, this award is given annually to a civil engineering student based on academic performance, financial need, and contributions to the school.

COMPUTER ENGINEERING

Computer Engineering Award for Technical Excellence

Awarded to those seniors who, in the judgment of the department faculty, have completed a capstone design project that is distinguished by an exceptionally high degree of technical and scholarly achievement.

Outstanding Computer Engineering Senior Award

Awarded to a senior by the faculty of the Computer Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

ELECTRICAL ENGINEERING

Outstanding Electrical Engineering Senior Award

Awarded to a senior by the faculty of the Electrical Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

MECHANICAL ENGINEERING

William J. and Marijane E. Adams Jr. Awards

Established in 1990 by William J. and Marijane E. Adams Jr., one award is conferred annually to an outstanding mechanical engineering undergraduate student with financial need, and one award provides a stipend for an outstanding graduating senior in mechanical engineering to continue to graduate school at Santa Clara.

Outstanding Mechanical Engineering Senior Award

Awarded to a senior by the faculty of the Mechanical Engineering Department based on excellent academic standing, contribution to the department and school, and quality senior design project.

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Student Life

CAMPUS MINISTRY

What is Campus Ministry?
Campus Ministry is a place and people, committed to spiritual and personal growth.

- In support of the University's mission to "development of the whole person," Campus Ministry offers a variety of programs and pastoral presence to support that development, particularly the spiritual and personal aspects.
- Campus Ministry is a *place:* a welcoming environment where faith may be explored, discovered, and developed; a place where there is always someone to talk to about anything, and a place where people meet for small groups, prayer, reflection, and learning.
- Campus Ministry is also the *people.* More than 500 students attend weekly worship, and even more students are involved in campus ministry programs. In addition to seven campus ministers, there are also resident ministers living in residence halls on campus.

What does Campus Ministry have to offer?

- Worship: Three Sunday liturgies in the Mission Church, daily noon Mass in the Mission, University celebrations, prayer services, and worship experiences throughout the year.
- Leadership opportunities: Campus Ministry offers paid internships in the areas of liturgy, social justice, faith formation, Christian unity, resident ministry, vocation discernment, interfaith ministry, retreats, and public relations. The internships encourage students to develop their interest and skills in ministry.
- Retreats: Santa Clara students, faculty, and staff are offered a number of retreat experiences over the course of the academic year. Offerings include a silent retreat, Search retreats, an Ignatian retreat, and vocation discernment retreats. Retreats are offered to persons of all faiths.
- Reflection groups: In addition to small groups such as Christian Life Communities and DISCOVER groups, Campus Ministry also partners with various organizations on campus to deepen reflection opportunities.
- Faith formation: Campus Ministry offers several opportunities for students to learn, to reflect and grow in regard to their faith through Scripture reflection, forums and presentations, and Sacraments of Initiation.

- Social justice awareness and action: Campus Ministry provides students with a variety of opportunities to respond to the Gospel call to actively live out a faith that does justice. Some key focus areas include: weekly Santa Clarans for Social Justice gatherings, addressing the needs of the local, national, and global communities; action, education, and reflection about current events, and experiences of solidarity.

Is Campus Ministry for everyone?

Yes! We welcome the participation of anyone—student, staff, or faculty—interested in spiritual and personal growth, regardless of faith tradition.

CAMPUS RECREATION

Campus Recreation is committed to the Jesuit ideal of developing the whole person through a broad range of recreational, educational, and competitive opportunities that seek to enrich the lives of students, faculty, and staff. Informal recreation opportunities include drop-in use of the weight and cardiovascular equipment and gymnasium in the Pat Malley Fitness and Recreation Center, lap swimming in the Sullivan Aquatic Center, or playing tennis at the Degheri Tennis Center. Noncredit lifetime recreation fitness classes are also available for a nominal quarterly fee to all members. Some examples of classes are Pilates, Bronco kick, interval training, and many more. Organized intramural sports leagues provide competitive opportunities in flag football, tennis, volleyball, badminton, basketball, soccer, table tennis, and softball against fellow Santa Clara students, faculty, and staff. Competitive club sports, open only to students, represent Santa Clara against teams from other colleges and universities in the region. Current club sports are boxing, cycling, equestrian, men's ice hockey, men's and women's lacrosse, men's and women's rugby, men's and women's ultimate Frisbee, men's and women's club volleyball, paintball, sailing, shotokan karate, swimming, triathlon, and women's field hockey.

CAREER CENTER

The Career Center provides students with a variety of services and resources to encourage self-discovery, provide a meaningful vocational journey, and educate for the continuous process of career and life development. Students explore their majors and career choices with counselors to reflect on attributes such as personality, skills, interests, and values and learn to represent those attributes effectively on resumes, in cover letters, during interviews, and throughout the life of their careers. To help students develop their skills and to put them in touch with potential employers, the Career Center offers a variety of programs each year, including career fairs, employer information sessions, career networking with alumni, vocation symposia, classes on career strategies, resume writing seminars, internship workshops, interview training, mock interviews, and professional etiquette training. Drop-in and by-appointment counseling sessions provide opportunities for individual support. The Career Center's Web site provides resources on internships, jobs, career fields, and career management strategies, as well as timely information on upcoming career-related events. Students may register online to participate in on-campus interviewing and to receive frequent notices about full-time and part-time jobs, internships, cooperative education placements, and volunteer positions. A resource library provides computer workstations for online research, books, and brochures on all aspects of career choice and job search, industry directories, journals, newspapers, information on particular companies, and guides to graduate schools.

The Student Employment Office, operated through the Career Center, assists students with on- and off-campus University student employment positions. Positions are posted through the Career Center's BroncoLink online job listings and are accessible to students via e-campus.

CENTER FOR STUDENT LEADERSHIP

The Center for Student Leadership is dedicated to providing high-quality leadership education through leadership programs and student activities in an integrated academic environment. Working with faculty, students, staff, alumni, and the greater community, the center will enhance student potential and educate for leadership in the Jesuit tradition. The staff of scholar-practitioners provides programs and services that embrace the values of social justice, citizenship, ethical decision-making, service to others, and diversity.

CHARTERED STUDENT ORGANIZATIONS

The **Activities Programming Board** provides social and educational events, programs, and leadership opportunities. Students may get involved with the Board as a staff member or a volunteer with concerts, comedians, speakers, and recreational and educational trips.

Associated Students of Santa Clara University is the undergraduate student government organization, which is divided into the executive, legislative, and judicial branches. Positions are available on the Student Senate, Student Court, University committees, or as club leaders.

KSCU is a student-run, non-commercial radio station at 103.3 FM. The program format features primarily independent music, including indie rock, punk, ska, jazz, blues, and reggae. Students may get involved with the radio station as a staff member or as a volunteer disc jockey, office assistant, fundraiser, or sound technical staff.

The **Multicultural Center** provides programming and program support for students of diverse ethnic backgrounds and for the campus community. The Center has more than 500 participating members and houses eight clubs, including Asian Pacific Student Union, Barkada, Chinese Student Association, Igwebuike, Intandesh, Ka Mana 'o O Hawaii, MEChA-El Frente, and the Vietnamese Student Association. Students may get involved with the Multicultural Center in a staff position and in volunteer opportunities as a board member, club leader, or event assistant.

The ***Santa Clara*** is the University's undergraduate weekly newspaper, serving as an informative and entertaining student-run campus publication. Students may get involved in a staff position or as a volunteer writer, photographer, or member of the business staff.

The ***Santa Clara Review*** is the University's biannual literary magazine and draws submissions from students, faculty, staff, and artists outside the University community. The Review is committed to the development of student literary talent in editorial knowledge and creative writing skills. Students may get involved with the magazine in several staff positions and with opportunities to volunteer in the areas of poetry, fiction, nonfiction, art, and management.

The Redwood is the University's annual yearbook capturing the pictorial history of each academic year. Students may get involved with the yearbook through staff positions and volunteer roles in writing, design, photography, and management. Students at-large are encouraged to participate by contributing photos and writings.

The **Santa Clara Community Action Program** is a community-based, volunteer service organization that promotes social awareness, leadership for social justice, and

compassion, and provides students opportunities to apply their education to social service. Program opportunities include Special Olympics, Veteran Connection, tutoring, and education. Students may get involved in both staff leadership positions and volunteer opportunities.

COMPUTING SERVICES

Undergraduate students are supported with a variety of computing services at Santa Clara University. All registered students are provided with University networking and e-mail accounts and may use any of the general computing resources provided by the University. Students agree that their use of the network and computing resources will be in accordance with the University's Acceptable Use Policy. The University uses Santa Clara e-mail as one of the communication channels for official notification to undergraduate students. Although the University urges students to use their Santa Clara e-mail address as their primary e-mail, students who will not be checking that address regularly should forward their Santa Clara e-mail to their alternate e-mail address.

Students have access to administrative information and services at all times through the e-campus portal. Web-based services include registering for classes, checking class availability, adding and dropping classes, reviewing class schedules, checking course grades, obtaining transcripts, reviewing financial accounts, and updating demographic information such as local and permanent addresses, phone numbers, and alternate e-mail addresses. Students and their faculty advisors can conduct degree audits online to assess progress toward completing degree requirements. An especially important administrative service is Campus Alert, the University's emergency notification system. Students should log onto e-campus to keep their emergency contact information current.

Although most students have their own computers, the University provides both PC and Macintosh high-end workstations in the Harrington Learning Commons for general computing. High-end multi-media workstations can also be found there in the Multi-Media Lab. The general workstations have various software packages for word processing, spreadsheet, database, presentation, and programming use, as well as networking software to support Web browsing, Telnet, and FTP with full Internet access. The multi-media stations include software for video editing, Web design, publishing, and other purposes. In addition to the workstations provided in Harrington, there are more than 400 computers located in classrooms and distributed computing labs dedicated to specific academic disciplines.

The University is connected to the Internet via high-speed connections with Internet access from the Santa Clara campus freely available to all students. Students living off campus must make separate arrangements for Internet access from their residence. Network jacks are also available in the Benson Memorial Center for laptop use. Almost all of the University campus is also covered by a wireless network.

All full-time faculty members have a personal computer or workstation in their offices, and computer use is a common element in all disciplines. E-mail is a frequent communication tool between and among faculty and students. Many faculty place course-related materials on ANGEL, the University's learning management system, or the University electronic reserve system (ERES), where they are accessible 24 hours per day.

The OSCAR library system provides students with access to the collections of the University Library and the Heafey Law Library and serves as a gateway to the University's online resources and interlibrary loan services, including the combined collections of more than 40 member institutions.

COUNSELING AND PSYCHOLOGICAL SERVICES

Counseling and Psychological Services offers mental health services to undergraduate and graduate students. The mission of the services is to support the developmental growth of students in ways that enable them to become more effective in their personal, academic, and social functioning. Counseling helps students address psychological issues that may affect their successful participation in the learning community. Among the psychosocial and developmental issues that students work on with their counselors are depression, anxiety, interpersonal problems, disturbed sleep or eating behaviors, acculturation, academic motivation, homesickness, family concerns, intimacy, and sexuality. The services are confidential and free and include individual counseling, couples counseling, group counseling, and psycho-educational programs.

COWELL STUDENT HEALTH CENTER

Cowell Health Center provides quality, accessible, and convenient medical care to Santa Clara students. The Health Center provides primary medical care, physicals, diagnosis of illness and injuries, immunizations, gynecological examinations, limited in-house pharmacy, and referral to specialists when needed. The Health Center staff includes physicians, nurse practitioners, physician assistants, registered nurses, and medical assistants. In addition, a psychiatrist, registered dietician, and physical therapy assistant are each available on a part-time basis. Cowell Health Center is accredited by the national Accreditation Association for Ambulatory Health Care.

All undergraduate students are eligible to use the services of Cowell Health Center. The Health Center does not charge for visits, but does charge students for laboratory work, medications, medical equipment, and other specialized services. Students are seen on an appointment basis and usually can be seen the same day, if an appointment is requested in the morning. The center is open from 8:30 a.m. to 5 p.m. Monday through Friday when classes are in session, except for Thursdays when the center opens at 9:15 a.m. When the Health Center is closed, there is an advice nurse available by phone and volunteer student emergency medical technicians who can visit students on campus. The center is closed from mid-June to mid-August.

All undergraduate students are requested to complete a pre-entrance health history prior to arrival at the University and are required to maintain health insurance coverage while enrolled at the University. Students will be charged for University health insurance unless they complete an online waiver verifying their own comparable insurance each academic year.

DRAHMANN ACADEMIC ADVISING AND LEARNING RESOURCES CENTER

The Drahmann Academic Advising and Learning Resources Center coordinates academic support services for undergraduate students and provides services for international students and students with disabilities at both the undergraduate and graduate levels. Staff of the Drahmann Center work closely with faculty and staff in the Residential Learning Communities, the deans' offices, Counseling and Psychological Services, the Career Center, the Office for Multicultural Learning, and the Center for Student Leadership to ensure that academic advising and other academic support services are integrated for the benefit of students.

Santa Clara University follows a developmental advising model based on a close student-faculty advisor relationship intended to assist students in achieving educational, career, and personal goals through the use of the full range of institutional resources. The Drahmann Center provides training for faculty advisors through both new faculty advisor workshops and ongoing training to keep faculty advisors current on University policies and available resources. The center also collaborates with other areas to enhance the ongoing advising support for all students, such as providing support for the peer advising program in the School of Business and working with the Office for Multicultural Learning to offer opportunities for faculty to develop advising skills in support of students from varied backgrounds. University advisors in the Drahmann Center assist students in working effectively with faculty members, with petitions for exceptions to University policy where unusual circumstances warrant, and with the resolution of special problems.

New Student Programs for undergraduate students are coordinated by the Drahmann Center. Through the New Student Orientation programs, advisors and staff at the center work with the faculty and staff throughout the University to introduce students to the campus community, to provide advising for new students' initial registration, and to help new students adjust to the demands and opportunities of University life. In support of the LEAD Scholars program, the Drahmann Center works to ensure that first-generation college students have access to the full range of University support services.

The Tutoring Center offers individual and group tutoring as well as consultation and workshops on learning strategies, study skills, and time management. The center also provides advising outreach in support of first-year and undeclared students through the Residential Learning Communities.

For undergraduate students interested in pursuing graduate study, the Drahmann Center offers a *Guide to Graduate Study* on its Web site. The Career Center also has a *Resource Guide to Graduate School* on its Web site. The Office of Fellowships maintains information on nominated graduate fellowships (e.g., Fulbright, Goldwater, Marshall, Rhodes) on its Web site and provides assistance in the application process for these awards. Faculty members are often the best source of information on the nature and quality of graduate programs in their academic discipline.

The Disabilities Resources Office has been designated by the University to ensure access for students with disabilities to all academic programs and campus resources. The goal is to support students with medical, physical, psychological, attention-deficit, and learning disabilities to participate fully in campus life, its programs, and activities. Emphasis is on growth and individual achievement through the provision of academic accommodations, support services, self-advocacy skill training, and disability-related educational programming for the campus community. Reasonable accommodations are provided to minimize the effects of a student's disability and to maximize the potential for success.

International Student Services provides assistance to undergraduate and graduate international students with issues related to visas, matters pertaining to immigration law, and general support for their transition to and continued success in their studies on campus.

The Drahmann Center also houses the University transcript analyst and the special program transcript analyst for evaluation of coursework taken either prior to transferring to Santa Clara or during an approved studies abroad or domestic program.

HOUSING AND RESIDENCE LIFE

The undergraduate residence halls at Santa Clara University are home to eight Residential Learning Communities that are vehicles for advancing the University's goals of integrated education and educating the whole person. In the theme-based Learning Communities, resident directors and faculty directors coordinate the efforts of resident ministers, faculty-in-residence, and student staff to encourage high academic achievement, effective community living, and individual development.

University residence halls accommodate more than half of the undergraduate population in co-educational communities with common lounge areas, study rooms, kitchen and laundry facilities, and other services. Most residence halls offer traditional double-occupancy rooms with common bath facilities; some halls offer suites and apartment-style accommodations with bathrooms en suite. All residence hall rooms and suites are equipped with a cable television connection and with Ethernet and telephone jacks for each student. Wireless network service is also available in the residence halls.

INTERCOLLEGIATE ATHLETICS

Santa Clara University supports a broad intercollegiate athletic program and is a member of Division I of the National Collegiate Athletic Association and a founding member of the West Coast Conference. With 19 intercollegiate sports, the Broncos field teams in men's and women's basketball, crew, cross country, golf, soccer, track and water polo, men's baseball, women's softball, and women's volleyball. The men's and women's soccer teams are perennially among the nation's elite programs, both having won national championships. Women's volleyball has also emerged in recent years as one of the nation's top programs. Santa Clara is one of the West Coast Conference's top broad-based programs, having won the WCC Commissioner's Cup in 2005 and 2007, an all-sports award presented to the league's top performing school in conference competition.

KIDS ON CAMPUS

Kids on Campus is the University childcare and preschool program for children of faculty, staff, students, and alumni between 6 weeks and 5 years of age. The staff at Kids on Campus provides a loving, creative, and safe learning environment designed to enhance the physical, mental, and social growth of each child through a "learning through play" philosophy.

OFFICE FOR MULTICULTURAL LEARNING

The mission of the Office for Multicultural Learning is to coordinate, collaborate, and promote cross-campus programming and related initiatives for purposes of enhancing Santa Clara University's goals for diversity and inclusive excellence and providing a welcoming campus climate in conjunction with the University Council on Inclusive Excellence.

Accreditations and Memberships

University Accreditation

Accrediting Commission for Senior Colleges and
Universities of the Western Association of Schools and Colleges
985 Atlantic Avenue, Suite 100
Alameda, CA 94501
(510) 748-9001

Specialized Accreditations

ABET, Inc. (formerly Accreditation Board for Engineering and Technology)
Accreditation Association for Ambulatory Health Care
Association to Advance Collegiate Schools of Business-International
Association to Advance Collegiate Schools of Business-Accounting
American Association of Museums
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American Council of Learned Societies
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Association of Governing Boards of Universities and Colleges
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Association of Jesuit Colleges and Universities
Campus Compact
College Entrance Examination Board
Council for Advancement and Support of Education
Council of Graduate Schools in the United States
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SANTA CLARA UNIVERSITY

CAMPUS MAP KEY

Organization	Building Name and Number		Map Location
Academic Departments			
Accounting Dept	Kenna Hall	204	B5
Anthropology Dept	O'Connor Hall	111	B3
Applied Mathematics Dept	Bannan Hall	405	C5
Art and Art History Dept	Fine Arts Bldg.	601	C8
Arts and Science College, Dean	Arts and Sci. Bldg.	804	C4
Asian Studies Program	Arts and Sci. Bldg.	804	C4
BioEngineering Program	Bannan Engineering	404	C5
Biology Dept	Alumni Science	208	B3
Business School, Dean	Kenna Hall	204	B5
Catholic Studies Program	Arts and Sci. Bldg.	804	C4
Center for Nanostructures	Bannan Engineering	404	C5
Center for Professional Development	Bannan Hall	405	C5
Chemistry Dept	Daly Science	211	B3
Civil Engineering Dept	Bannan Engineering	404	C5
Civil Society Institute	Kenna Hall	204	B5
Classics Dept	741 Franklin St.		B2
Combined Sciences Program	Daly Science	211	B3
Communication Dept	Arts and Sci. Bldg.	804	C4
Computer Engineering Dept	Bannan Engineering	404	C5
Counseling, Psychology Dept	Bannan Hall	405	C5
E-Commerce Initiative	St. Joseph's Hall	102	B5
Economics Dept	Kenna Hall	204	B5
Education Dept	Bannan Hall	405	C5
Electrical Engineering Dept	Bannan Engineering	404	C5
Engineering Management Dept	Bannan Engineering	404	C5
Engineering, Dean	Bannan Engineering	404	C5
Engineering Design Center	Bannan Engineering	404	C5
Engineering School of Design	Bannan Engineering	404	C5
English Dept	St. Joseph's Hall	102	B5
Environmental Studies Institute	874 Lafayette St.		A4
Ethnic Studies	852 Market St.		A7
Executive Development Center	900 Lafayette St.		A3
Finance Dept	Kenna Hall	204	B5
Food and Agribusiness Program	St. Joseph's Hall	102	B5
Gerontology Program	Alumni Science	208	B3
Health Sciences Program	Arts and Sci. Bldg.	804	C4
History Dept	O'Connor Hall	111	B3
Individual Studies Program	O'Connor Hall	111	B3
Law, Dean	Heafey Library	202	C5
Law, Library	Heafey Library	202	C5
Law, Faculty Support Services	Bergin Hall	203	C5
Leavey School of Business Graduate	Kenna Hall	204	B5
Leavey School of Business Undergraduate	Kenna Hall	204	B5
Liberal Studies	743 Franklin St.		B2
Management Dept	St. Joseph's Hall	102	B5
Marketing Dept	St. Joseph's Hall	102	B5
Mathematics and Computer Science	O'Connor Hall	111	B3
Mechanical Engineering Dept	Bannan Engineering	404	C5
Medieval/Renaissance Program	Fine Arts Bldg.	601	C8
Military Science Dept	Varsi Hall	106	A5
Modern Languages & Literature Dept	Bannan Hall	405	C5
Music Dept	Music and Dance Bldg.	114	A3
Office of College Special Programs	743 Franklin St.		B2
Operations and Management Information Systems (OMIS)	Kenna Hall	204	B5

Organization	Building Name and Number		Map Location
Academic Departments (cont'd.)			
Osher Lifelong Learning Institute	Arts and Sci. Bldg.	804	C4
Pastoral Ministries. Graduate Program	Bannan Hall	405	C5
Philosophy Dept	Bannan Hall	405	C5
Physics Dept	Daly Science	211	B3
Political Science Dept	Arts and Sci. Bldg.	804	C4
Psychology Dept	Alumni Science	208	B3
Religious Studies Dept	Bannan Hall	405	C5
Retail Management Institute	St. Joseph's Hall	102	B5
Retail Studies Program	St. Joseph's Hall	102	B5
School of Education, Counseling Psychology and Pastoral Ministries	Bannan Hall	405	C5
Sociology Dept	O'Connor Hall	111	B3
Summer Program (Undergraduate)	Arts and Sci. Bldg.	804	C4
Theatre and Dance Dept	Mayer Theatre	110	A3
University Honors Program	St. Joseph's Hall	102	B5
University Library	Learning Commons	401	C6
Women's and Gender Studies	862 Market St.		A7
Young Scholars Program	Arts & Sci. Bldg.	804	C4
University Administrative Offices			
ACCESS Card Office	Benson Center	301	B6
Accounts Payable	990 Benton St.		A2
Activities Programming Board (APB)	Benson Center	301	B6
Adobe Lodge	Adobe Lodge	108	A4/5
Administration and Finance, V.P.	Walsh Admin. Bldg.	201	B4
Affirmative Action Office	Loyola Hall		E10
Alumni Relations	Donohoe Alumni House	103	B5
Alumni and External Relations	832 Market St.		B7
Associated Students (ASSCU)	Benson Center	301	B6
Athletics	Leavey Center	702	E6
Auxiliary Services	Benson Center	301	B6
Bookstore	Benson Center	303	C6
Buck Shaw Stadium	Buck Shaw	706	D4
Bronco Bench Foundation	Leavey Center	702	E6
Bursar's Office	Walsh Admin. Bldg.	201	B4
Budget Office	990 Benton St.		A2
California Legacy Project	St. Joseph's Hall	102	B5
California Studies Initiative (CASI)	Bannan Hall	405	C5
Campus Ministry	Benson Center	301	B6
Campus Safety Services	Parking Structure	714	D5
Career Center	Benson Center	301	B6
Center for Student Leadership	Benson Center	301	B6
Center of Performing Arts	Music and Dance Bldg.	114	A3
Controller's Office	990 Benton St.		A2
Counseling and Psychological Services (CAPS)	Cowell Building	701	D7
Cowell Health Center	Cowell Building	701	D7
Credit Counseling	Walsh Admin. Bldg.	201	B4
de Saisset Museum	de Saisset Museum	206	B4
Development Office	Loyola Hall		E10
Dining Services	Benson Center	301	B6
Disabilities Resources	Benson Center	301	B6
Drahmann Advising and Learning Resources Center	Benson Center	301	B6
Enrollment Management	Varsi Hall	106	A5
Facilities	Facilities Building	604	D9
Faculty Development Program	Cesar Chavez Commons	112	B3
Financial Aid Office	Varsi Hall	106	A5

Organization	Building Name and Number		Map Location
University Administrative Offices (cont'd.)			
Housing	Benson Center	301	B6
Human Resources	Loyola Hall		E10
Information Desk	Benson Center	301	B6
Information Technology (IT)	Info. Technology Bldg.	403	C5
Institutional Research	Walsh Admin. Bldg.	201	B4
International Programs	Cesar Chavez Commons	112	B3
International Student Services	Benson Center	301	B6
Jesuit Community	Jesuit Residence	801	B2
Kids on Campus	Kids on Campus		B7
KSCU FM 103.3 Radio Station	Swig Hall	307	B6
Law, The Advocate and Student Bar Assoc	Benson Center	301	B6
Law, Development and Alumni Relations	900 Lafayette St.		A3
Leavey Events Center	Leavey Center	702	E6
Library Administrative Offices	Learning Commons Technology Center, and Library	401	C6
Mailing Services	Facilities Building	604	D9
Media Services	Ricard Observatory	104	A5
Mission Church	Mission Church	101	B4
Multicultural Center	Shapell Lounge	302	C6
Multicultural Learning Office	852 Market St.		A7
Northern California Innocence Prog	Loyola Hall		E10
Office of Fellowships	St. Joseph's Hall	102	B5
Office of Marketing and Communication	Donohoe Alumni House	103	B5
Office of General Counsel	Nobili Hall	109	A4
Office of the Registrar	Walsh Admin. Bldg.	201	B4
Office of Undergraduate Studies	Walsh Admin. Bldg.	201	B4
Planning and Projects	Facilities Building	604	D9
Post Office	Benson Center	301	B6
President's Office	Walsh Admin. Bldg.	201	B4
Property Management	990 Benton St.		A2
Provost's Office	Walsh Admin. Bldg.	201	B4
Purchasing	Facilities Building	604	D9
Recreation	Malley Center	715	D6
Redwood Yearbook	Benson Center	301	B6
Residence Life	Benson Center	301	B6
Resident Ministry	Benson Center	301	B6
Residential Learning Communities	Benson Center	301	B6
Santa Clara Review	Benson Center	301	B6
Santa Clara, The (student newspaper)	Benson Center	301	B6
Sponsored Projects	Cesar Chavez Commons	112	B3
Student Life	Benson Center	301	B6
Undergraduate Admissions	Varsi Hall	106	A5
University Archives	Learning Commons Technology Center, and Library	401	C6
University Cashier	Walsh Admin. Bldg.	201	B4
University Event Planning Office	Benson Center	301	B6
University Finance Office	990 Benton St.		A2
University Operations	Facilities Building	604	D9
University Relations	Loyola Hall		E10
University Support Services	Loyola Hall		E10
Wellness Center	Malley Center	715	D6
Centers of Distinction			
Center for Innovation and Entrepreneurship	900 Lafayette St.		A3
Center for Science, Technology, & Society	Loyola Hall		E10
Ignatian Center for Jesuit Education	Sobrato Hall	605A	D8
Markkula Center for Applied Ethics	Arts & Sci. Bldg.	804	C4

Organization	Building Name and Number		Map Location
Resident Halls			
Bellarmine Hall	2505 The Alameda		C9
Campisi Hall		505	D7
Casa Italiana		602	D8
Dunne Hall		308	A6
Graham Hall		501-4	C7
McLaughlin Hall		305	B6
Sanfilippo Hall		506	D7
Sobrato Hall		605	D8
St. Clare Hall	3355 The Alameda		B1
Swig Hall		307	B6
The Commons on Kennedy Mall		306	A6
Walsh Hall		304	A6
Off-Campus Buildings			
English Offices	734 Benton St.		B2
Loyola Hall	425 El Camino Real		E10
Schott Baseball Stadium	443 El Camino Real		F8/9
St. Thomas More Hall	2455 The Alameda		C9

Academic Department and Program Abbreviations

ACTG	Accounting
AERO	Aerospace Studies
AMTH	Applied Math
ANTH	Anthropology
ARAB	Arabic Studies (in Modern languages and Literatures)
ARTH	Art History
ARTS	Studio Art
ASCI	Arts and Sciences
ASIA	Asian Studies
BIOE	Bioengineering
BIOL	Biology
BUSN	Business Administration
CENG	Civil Engineering
CHEM	Chemistry
CHIN	Chinese Studies (in Modern Languages and Literatures)
CLAS	Classics (including Latin and Greek)
COEN	Computer Engineering
COMM	Communication
CSCI	Computer Science
DANC	Dance
ECON	Economics
EDUC	Education
ELEN	Electrical Engineering
ENGL	English
ENGR	Engineering
ENVS	Environmental Studies
ETHN	Ethnic Studies
FNCE	Finance
FREN	French and Francophone Studies (in Modern Languages and Literatures)
GERM	German Studies (in Modern Languages and Literatures)
HIST	History
HNRS	University Honors Program
INTL	International Programs
ITAL	Italian Studies (in Modern Languages and Literatures)
JAPN	Japanese Studies (in Modern Languages and Literatures)
LBST	Liberal Studies
MATH	Mathematics
MECH	Mechanical Engineering
MGMT	Management
MILS	Military Science
MKTG	Marketing
MRST	Medieval and Renaissance Studies
MUSC	Music
OMIS	Operations and Management Information Systems
PHIL	Philosophy
PHYS	Physics
POLI	Political Science
PSYC	Psychology
RLC	Residential Learning Community
RSOC	Religion and Society (in Religious Studies)
SCTR	Scripture and Tradition (in Religious Studies)
SOCI	Sociology
SPAN	Spanish Studies (in Modern Languages and Literatures)
TESP	Theology, Ethics, and Spirituality (in Religious Studies)
THTR	Theatre
WGST	Women's and Gender Studies

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